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The Causal Influence of Control  
Beliefs on Expectations at Work

Paul J. Cook

A Dissertation

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the requirements for the degree of

DOCTOR OF PHILOSOPHY

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## ABSTRACT

This research proposed that there are fundamental similarities among locus of control beliefs, which are important to social learning theory, and constructs in expectancy theory of work motivation. It was hypothesized that locus of control may impact expectancy theory in two ways: as direct causes of expectancy theory constructs and as boundary conditions for operation of an expectancy theory model.

Hypotheses were evaluated by, first, operationalizing an expectancy theory model according to theoretical considerations and findings from other research. Then, with a successfully operationalized model, relationships among expectancy theory variables and locus of control were evaluated.

A policy-capturing task was used to model characteristics of a military training situation and to derive values for expectancy theory variables. Within-subjects analyses evaluated the model for each subject, and between-subjects path analyses evaluated relationships with locus of control. The expectancy theory model predicted effort for the majority of subjects, but amount of variance accounted for varied widely among subjects. Path analyses confirmed several expected

relationships, none of which were strong, and did not confirm others. There was no support for the hypothesis that locus of control serves as a boundary condition for expectancy theory.

This study attempted to integrate two theories with modest success. Results supported existing knowledge about expectancy theory but accentuated the complexity involved in studying work motivation.

## ACKNOWLEDGEMENTS

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Finally, it is my sincere prayer that I can use this education to God's purpose, because it is only through His blessing and grace that I have had the opportunity to pursue this degree.

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## Introduction

Expectancy theory of work motivation and social learning theory both attempt to understand behavior through perceived contingencies between people and their environment. Although these theories focus on different aspects of behavior, there are certain fundamental similarities among constructs in both theories. This research proposed formal, structural relationships that might exist among locus of control beliefs, from social learning theory, and expectancy theory constructs. In particular, locus of control, conceptualized as a relatively stable, transsituational characteristic of people, may have a causal effect on behavior through the expectancy theory constructs of instrumentality of behavior for desired outcomes and the expectancy that individual effort will lead to task-oriented behaviors. Several studies suggest relationships among these constructs; however, many methodological problems, especially with expectancy theory, have limited the results of such research. The purpose of this study was, first, to operationalize an expectancy theory model according to theoretical considerations and findings from other research. That is, measurement methods were based on empirical research and applied according to theoretical constraints. With a successfully operationalized model, the

further purpose was to evaluate the relationships among expectancy theory variables and locus of control beliefs. Relationships were viewed in two ways: locus of control beliefs as possible causal agents for expectancy theory variables, and locus of control beliefs as moderators (boundary conditions) of the overall functioning of an expectancy theory model.

### Expectancy Theory

Expectancy theories of motivation have been popular for many years and have spawned considerable research. The number of review articles alone indicates the appeal of the theory to researchers (Campbell & Pritchard, 1976; House & Wahba, 1972; House, Shapiro, & Wahba, 1974; Mitchell, 1974; Schwab, Olan-Gottlieb, & Heneman, 1979; Wanous, Keon, & Latack, 1983).

No single theory or theorist is associated with expectancy theory. Mitchell (1974) stated that expectancy theory represents a class of similar theories, all incorporating some notion that behavior depends on expectations about the contingency between actions and valued outcomes and that people can assess environmental characteristics and react rationally. Extensive literature has addressed theoretical considerations and practical applications. However, many issues remain unresolved and considerable work is yet to be done to understand fully the cognitive processes underlying motivation.

### Basic Components of Expectancy Theory

Several variations of expectancy theory share basic principles. The differences lie primarily in the definitions of variables and the rules for combining variables to predict effort or choice behavior. Campbell and Pritchard (1976) reviewed the different orientations, along with empirical evidence supporting each, and offered a "composite" theory. Their goal was to consolidate the major theories, contradict none seriously, and allow integration of new ideas and research evidence. This composite theory provides useful working definitions for the components of the theory in the current study.

The composite model is shown in Figure 1 for one level of effort and one particular task alternative. Note that a number of such models would be required to portray multiple levels of effort or multiple task alternatives. Campbell and Pritchard (1976) retained the terminology used by other theorists for the three main theoretical variables: valence refers to anticipated value of a potential outcome; instrumentality is the perceived relationship between a person's performance (attainment of task goals here) and attaining outcomes; and expectancy refers to the degree of belief that performance (attainment of task goals) can be achieved (either the degree to which a level of effort leads to a level of task goal attainment, or the perceived relationship between effort and task goal attainment).

Force to expend specific level of effort	Expectancy that specific level of effort will/will not accomplish task	Valence of task goal accomplish- ment/failure	Instrumentality of task accomplishment/ failure for job outcomes	Valence of job outcomes (O)	Instrumentality of job outcomes for need satisfaction	Valence of "basic" needs (N)
--	--	--	--	--------------------------------------	--	------------------------------------

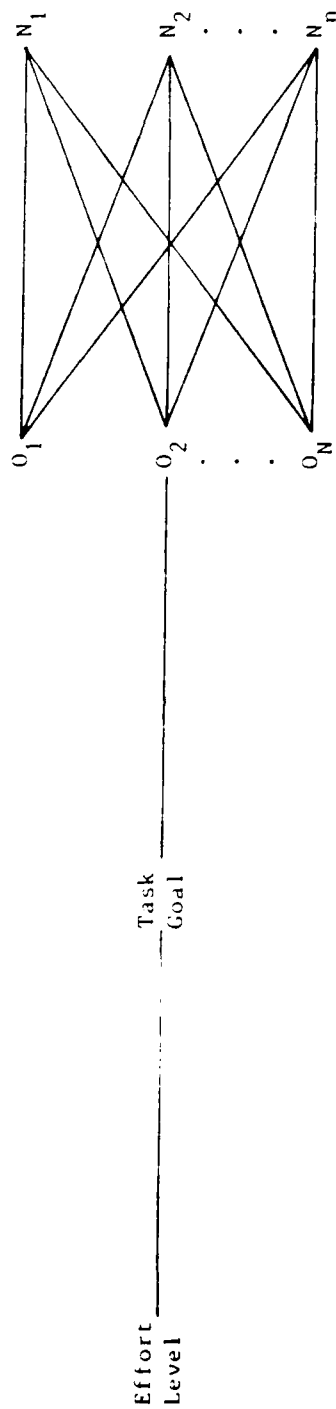


Figure 1. Composite expectancy-valence model. (From Campbell & Pritchard, 1976)

As in other versions of expectancy theory, this model may be used to predict choices among alternatives, level of effort directed toward a goal, or change in effort or choice over time. It is important to remember that in expectancy theory the objective is not to predict performance, but level of effort or choice behavior. Effort and choice behavior constitute but one component (motivation) of performance along with ability, experience, environmental constraints, etc.

Campbell and Pritchard (1976) referred to a specific level of performance on a specific task as a task goal. In this context, performance refers to some level of task-oriented behavior. It is up to the individual to decide how much effort to put toward attaining a task goal. Presumably, a person considers whether he or she has the ability to perform necessary behaviors, whether there are constraints to performance, etc. Thus, a task goal is a set of identifiable behaviors that can be clearly evaluated for level of attainment or performance (e.g., production of a quantity of products, resolution of a problem, sale of an item, etc.). The identification of a task goal, according to Campbell and Pritchard (1976), requires the researcher to consider the content, dimensionality, difficulty, clarity, and source of definition of task goals. It is not sufficient



to refer to overall task goals, or levels of effort and performance to attain task goals, without stating the characteristics of the task goals.

Attaining task goals is necessary to attain or avoid outcomes. Two basic types of outcomes are distinguished: those that are provided by the organization (extrinsic), and those that are granted by the person (intrinsic). Furthermore, outcomes may be distinguished as those directly contingent upon task goal accomplishment (first level), and those farther removed (second level). The second level outcomes represent satisfaction of more basic needs that accrue from combinations of more specific first level outcomes. The point of these distinctions is to guide the researcher in specifying the appropriate relationships of outcomes and instrumentalities in the model. It is reasonable that people can assess the instrumentality of a task goal for a particular first level outcome. Assessing the contingency between a task goal and a second level outcome may be more difficult, especially if the second level outcome is long range or depends on attaining several first level outcomes.

Task goals and first level outcomes have some value to a person. The valence of a task goal is a function of the valence of first level outcomes and the instrumentality of the task goal to obtain these outcomes.

The decision to put a level of effort on a task goal(s), or to choose among alternative behaviors, is a function of the value of the outcomes sought, the belief that accomplishing a task goal(s) will aid in attaining outcomes, and the belief that a level(s) of effort can result in accomplishing a task goal(s). Exactly how these variables combine to predict effort is debatable. Vroom's (1964) presentation of expectancy theory specified a multiplicative rule (the absence of any variable would result in no effort predicted). However, as Schmidt (1973) pointed out, testing a multiplicative rule requires ratio data which is rarely achieved in expectancy theory research. Campbell and Pritchard (1976) did not argue for any specific rule, but urged continued study.

#### Empirical Support for Expectancy Theory

To date, no one has tested the full composite model. But because this is a composite, some validity evidence is provided by research with other versions of expectancy theory. Campbell and Pritchard (1976) reviewed a variety of studies and concluded, in general, that the bulk of the research supports the usefulness of both expectancies (as effort and performance contingencies) and instrumentalities (as performance and outcome contingencies). They estimated a correlational ceiling for the full expectancy model of about .30 for independent effort ratings. However, the results for the full model and for components individually are not

typically very different. Subsequent research by Behling, Dillard, and Gifford (1979) reinforces this conclusion. Also, Schwab, Olan-Gottlieb, and Heneman (1979), after a review of 32 studies, concluded that maximum variance explained cannot be obtained by strict adherence to theoretical considerations. These conclusions support the contention by Campbell and Pritchard (1976) that additional research is necessary to understand how the variables should be combined.

Many of the studies reviewed by Campbell and Pritchard (1976) and others have used between-subjects designs. Wanous, Keon, and Latack (1983) reviewed 16 within-subjects studies of organizational choice and noted much higher predictive validity (e.g., an average organizational attractiveness validity of .72, and average accuracy of 63.4% in predicting organizational choice). Zedeck (1977) and Stahl and Harrell (1981, 1983) also reported high validities for some subjects with policy-capturing approaches to prediction. Two studies (Kopelman, 1977; Muchinsky, 1977) used within-subjects designs to predict effort toward academic coursework and reported considerably higher validities (for some subjects) than those obtained in more traditional between-subjects techniques. These within-subjects studies suggest that the proposed correlational ceiling of .30 may be too low if more appropriate research methods are used. Vroom's (1964) original exposition of expectancy theory focused on

prediction of choices among alternative levels of effort and within-subjects designs are more appropriate to evaluate choice behavior.

### Locus of Control

Rotter (1966) introduced the locus of control concept into his social learning theory to help explain changes in expectancies of reinforcements. Simply stated, if a person expects that a reinforcement has resulted from his or her own behavior, that person has exhibited belief in internal control. Conversely, external control is the belief that reinforcement results from the actions of other people, chance, fate, etc. These beliefs are thought to develop over time according to a person's reinforcement history in various situations. Rotter's social learning theory specifies that behavior is a function of locus of control beliefs, situational characteristics, and the value of reinforcements to the person. Locus of control is considered, by Rotter, to be a relatively stable characteristic that generalizes across similar situations. The more novel the situation, the more effect these beliefs have on behavior.

Locus of control is frequently measured with the bipolar Internal-External Scale developed by Rotter (1966). Although he provided evidence that internality and externality represented the ends of a continuum, subsequent research has shown the construct to be multidimensional (Cherlin &

Bourque, 1974; Collins, 1974; Cook, 1984; Duffy, Schiflett, & Downey, 1978; Gurin, Gurin, Lao, & Beattie, 1969; Mirels, 1970).

Levenson (1973a, 1973b) developed a three-part locus of control scale to assess beliefs in personal control, chance control, and control by powerful others. By distinguishing control by chance from control by powerful others she reasoned that people who believe the world is unordered and controlled by chance happenings would behave differently from people who believe the world is ordered but controlled by powerful others. Each subscale consists of eight items with responses made on a 7-point scale and summed for separate subscale scores. Kopplin (1976) developed a fourth subscale, similar in form and content to Levenson's subscales, to assess beliefs in control by God.

The three sources of control proposed by Levenson (1973a, 1973b) have been repeatedly reported in factor analytic studies with different groups including psychiatric patients (Levenson, 1973a), college undergraduates (Levenson, 1974; Lindbloom & Faw, 1982; Walkey, 1979), and Navy enlisted personnel (Butler & Burr, 1980). Hong and Bartenstein (1982) reported three factors with 173 Australian high school students but a general external dimension was identified and the chance dimension was not apparent (as it was in other studies).

Based on the evidence that locus of control is a multidimensional construct, Levenson's scale along with the scale developed by Kopplin (1976) was used in the current study. Note that the use of this multidimensional instrument involves different interpretation of the scale scores than the familiar internal-external continuum of Rotter's scale. Each scale score represents higher or lower beliefs in control by a particular source but does not signify anything about beliefs in control by the other sources. As Levenson (1981) noted:

A word of caution about interpretation is necessary. High scores on each subscale are interpreted as indicating high expectations of control by the source designated. Low scores reflect tendencies not to believe in that locus of control. We cannot interpret a low I Scale score (personal control) as indicating that a subject believes in chance; we can only say that this subject does not perceive him- or herself as determining outcomes. Empirically, one could score high or low on all three scales (personal, powerful others, chance); that is, a person could say he or she was personally in control yet also say that life is a random series of events controlled by powerful others. Rarely has such a profile been obtained. Before one could interpret such a seemingly inconsistent profile one would have to give serious consideration to the presence of confounding factors (e.g., acquiescence response set or random responding). (p. 18)

#### Relationship of Locus of Control and Expectancy Theory

##### Locus of Control and Expectancies

According to expectancy theory, a person evaluates a particular situation to determine whether various levels of effort are likely to lead to task goal accomplishment. A person acting logically would presumably evaluate such

factors as ability, training, availability of necessary tools (or clients, or market), and so on. However, an extensive body of research concludes that people are not always perfectly logical or rational in their decisions. A variety of biases and errors distort processes and resultant decisions. For example, in assessing effort-outcome (task goal) expectancies, people may fail to gather the necessary situational facts, misread the data, rely on someone else in their evaluations, and so on. People may also base their evaluations on previous experience in apparently similar situations.

It is possible that locus of control beliefs have an impact on the evaluations of behavior-outcome (task goal) relationships. These beliefs may supplant more objective assessment of the situation and provide available, although not necessarily accurate, bases for expectancy decisions. It is not suggested that locus of control beliefs fully account for expectancies, but locus of control orientation may to some extent affect careful, objective evaluation of expectancies. Thus, the more a person believes outcomes to be under personal control, the stronger the expectation (in general) that effort will lead to task accomplishment. Conversely, the more a person believes outcomes to be under the control of other people, fate, luck, etc., the less the expectation that behavior will bring about task goal success.

### Locus of Control and Instrumentalities

Instrumentalities address the contingency between task goal success (or failure) and outcome attainment. Organizational structure and policies undoubtedly exert a great deal of influence over this contingency. People presumably weigh these factors in assessing instrumentality. However, there are degrees to which the organization clearly specifies task goals as steps to outcome attainment, and to which the decision is partly up to the individual. In the latter case, for example, an individual may be able to choose various task goals (such as type of project to work on, area for concentration of expertise, etc.) and influence the definition of achievement success (such as percentage increase in output). Where there is some latitude for the individual to influence the relationship of task goal success and outcome attainment, locus of control beliefs may influence assessment of instrumentalities. A person with strong personal control beliefs regards outcomes in general as the consequences of personal behavior. Such a person may assess instrumentalities higher than a person who believes outcomes in general are controlled by other sources. Because outcome attainment is primarily a function of organizational policy, the influence of locus of control beliefs on instrumentalities is probably more subtle than the influence on expectancies.



### Locus of Control and Valence

Although there is no relevant research, it may be that locus of control beliefs also influence valence ratings. For example, people who generally believe that they are in control of desired outcomes may value specific outcomes more highly than people who see little consequence of personal actions. The latter individuals may devalue outcomes somewhat to protect against dissatisfaction with not obtaining them (dissonance reduction). A simple hypothesis seems appropriate: that the higher the personal control beliefs, the higher the valence ratings of specific outcomes; and conversely, higher external control beliefs lead to lower valence ratings. It is not anticipated that these relationships will be strong. There are undoubtedly many other factors that influence valence ratings (such as present level of satisfaction with an outcome, number of outcomes sought, etc.). But in general, control beliefs may have some impact on the way people view a situation. Because valence ratings are critical to expectancy theory, it is useful to explore potential causal variables, such as control beliefs.

### Empirical Support for the Relationship of Locus of Control and Expectancy Theory Variables

Although no one has specifically studied causal directions, several investigators have reported relationships between expectancy theory constructs and locus of control. For example, Batlis (1978) divided a sample of undergraduates

into internals and externals (a median split based on measurements early in the course) to examine the moderating effects of locus of control. The correlation between predicted course grades and actual course grades was .63 for internals, but only .18 for externals. This finding essentially replicated Batlis and Waters (1973).

Additionally, Evans (1974) reported significant multiple correlations between motivation (expectancy x instrumentality) and supervisory consideration in ten activities for internals, but detected a significant multiple correlation for externals in only one activity. Kimmons and Greenhaus (1976) reported a higher performance-reward (pay) contingency for internals ( $p < .10$ ). Mitchell, Smyser, and Weid (1974) found that internals had significantly higher expectancies that hard work would lead to good performance evaluations, and that those evaluations would help them get what they wanted out of their jobs (instrumentalities). The results of several other studies reporting correlations between locus of control and expectancy theory variables are shown in Table 1.

This brief research review suggests that locus of control and expectancy theory variables share some common variance. Whether the nature of this common variance can be regarded as causal or some other form (method variance) was addressed in this study.

Table 1

Correlations Among Locus of Control and Expectancy Theory Variables

Study	Variables <sup>a</sup>	Correlation with I-E Scale <sup>b</sup>
Broedling (1975) (Prediction of effort at work for Navy personnel)	Mean VI	-.39**
	Mean E	-.28**
	E x mean VI	-.38**
Lied and Pritchard (1976) (Prediction of effort in Air Force technical training)	E	-.40*
	Mean I	-.20*
	E $\Sigma$ (VI)	-.42*
Szilagyi and Sims (1975) (Prediction of effort at work for hospital employees)	E1 (effort-to-perf)	
	Administrative	-.07
	Professional	-.16**
	Technical	-.02
	Clerical	-.25**
	Service	-.15*
	E2 (perf-to-reward)	
	Administrative	-.39**
	Professional	-.25**
	Technical	-.20*
	Clerical	-.24**
	Service	-.21**

<sup>a</sup>E=expectancies I=instrumentalities V=valence. <sup>b</sup>Higher I-E scale scores indicate external control beliefs.

\*p < .05. \*\*p < .01.

### Impact on Expectancy Theory Predictions

The discussion to this point has suggested that one's locus of control beliefs may have some direct influence on judgments of expectancies, instrumentalities, or valences. The discussion has been at the level of variables within a model. But what about the impact of locus of control beliefs on the expectancy theory model as a whole? It was hypothesized that expectancies, instrumentalities, and valences might be higher for individuals who hold higher personal control beliefs and lower beliefs in other sources. Stated another way, it may be that the task of judging expectancies, instrumentalities, and valences is only a meaningful and relevant task for people who believe they have control over events and outcomes. From this perspective, locus of control may not just serve as a causal agent to variables in the model, but as a cause (or prerequisite or boundary condition) for the ability of the model to predict effort in the first place.

Thus, another hypothesis is that expectancy theory works best for people who hold higher levels of personal control beliefs. This hypothesis does not compete with the other hypotheses regarding the individual variables, but addresses a different perspective on the expectancy theory model. As noted earlier, several researchers, using within-subjects designs, have shown varying degrees of predictability of the model for different people (Muchinsky, 1977; Stahl & Harrell,

1981; Zedeck, 1977). However, no research has attempted to account for these differences in predictability. The current study addressed this issue.

### Current Study

#### Summary of Purpose

The purpose of this study was, first, to operationalize and test an expectancy theory model according to theoretical considerations and findings from other studies. A within-subjects design was used to predict choice of effort level for each person in the study. Having successfully operationalized a model, the further purpose was to evaluate the impact of locus of control beliefs in both the role of causal agents for individual expectancy theory variables and as boundary conditions for the overall functioning of the operationalized model. The particular hypotheses were that higher personal control beliefs would lead to higher expectancies, instrumentalities, and valence ratings. Conversely, higher beliefs in other sources of control (i.e., control by chance, powerful others, or God) would decrease assessment of expectancy theory variables. An additional hypothesis was that the model, as a whole, would predict effort better for people with higher personal control beliefs. Thus, locus of control may serve as a boundary condition for expectancy theory.

### Expectancy Theory Model

The Campbell and Pritchard (1976) model has been redrawn as a path model in Figure 2. This model may be used to predict either the amount of effort to be expended in a given situation or force toward choosing a particular alternative.

There are several conventions used to diagram causal models. Squares represent variables. An exogenous variable is one whose variance is not to be explained and is assumed to be determined by causes not specified in the model. The variance in an endogenous variable is caused by an exogenous variable, another endogenous variable or both. Unidirectional arrows indicate the proposed causal direction of independent variables on dependent variables. Curved two-headed arrows indicate natural, non-causal relationships among exogenous variables which remain unanalyzed (or in the simplifying convention used here, an arc with arrows to variables indicates all possible pairwise non-causal relationships).

A distinction has been made between intended effort and actual effort for several reasons. First, self-reported intended effort is not independent of other self-reported expectancy theory variables. A more objective measure is necessary to show that expectancy theory variables account for more than just method variance. Furthermore, intended effort may never be completely translated into action. Lack of ability, situational interventions, or poor judgment may set aside intentions. A measure of effort as observed by

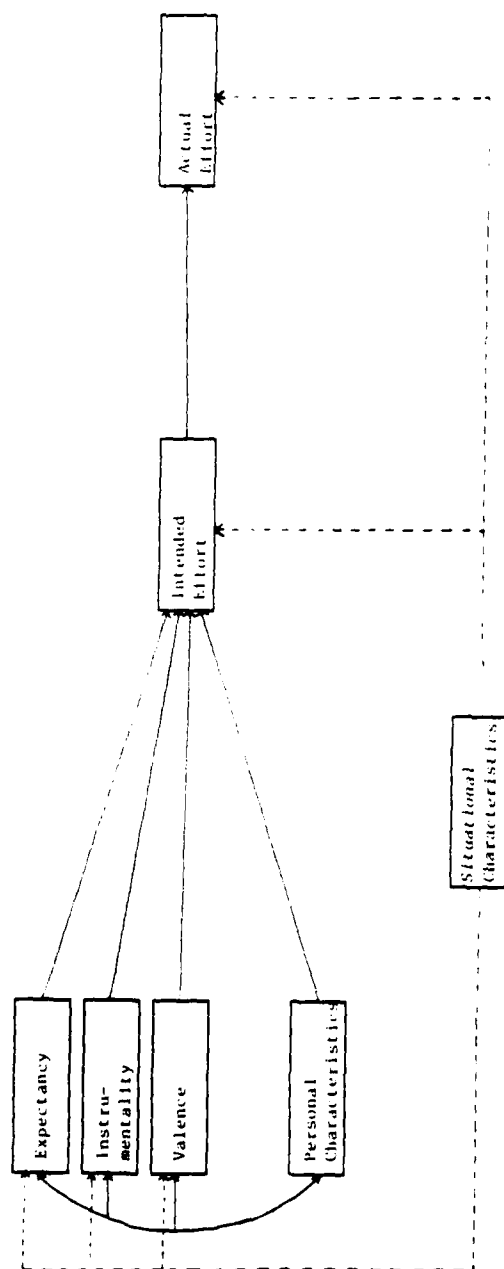


FIGURE 2. Path Model of Expectancy Theory

others helps evaluate expectancy theory predictions. Intended effort is, however, expected to be a direct cause of actual effort.

Expectancies, instrumentalities, and valence of job outcomes (first level) are shown as separate contributors to intended effort. Campbell and Pritchard (1976) felt that research was not conclusive enough to warrant a particular rule for combining the variables. Subsequent research by Stahl and Harrell (1981) using a within-subjects design has shown that an additive rule provided superior predictions for most subjects in four experiments. Multiplicative combinations were not considered in the path model of the current study.

A box labeled situational characteristics has been included as a potential cause of actual effort, intended effort, expectancies, instrumentality, and valence. This box actually represents a number of variables that may have causal impact. Lawler (1973) stated that the objective situation is the most important determinant of a person's expectancies and instrumentalities. He argued that over time most people's perceptions begin to fit reality reasonably well and, therefore, that expectancy and instrumentality judgments should be fairly accurate. This assumption fits well in the current study in that those people who generally believe outcomes are controlled by external sources may be less inclined to judge connections between



their behavior and outcomes (task goals), or outcomes (task goals) and other outcomes (first level). Their judgments may not necessarily reflect accurate changes in the situation. However, for individuals who hold lower beliefs in control by external sources and higher beliefs in personal control, judgments should be more sensitive to situational changes. For these reasons, situational characteristics are shown as causes of expectancies and instrumentalities.

The same logic can be applied to valence judgments. One's anticipated value of an outcome may be tempered by realistic constraints, such as availability of an outcome in a certain time period, legal considerations, and so on. These considerations are in addition to the judgments of whether effort will result in goal attainment, or whether goals lead to outcomes.

Situational characteristics may also determine whether intended effort is translated into actual effort. A person may be high in all expectancy theory judgments yet be severely constrained by the actual environment. For example, there may simply not be enough hours in the day to carry out the behaviors one would like. Or the judgments leading to effort may be made according to certain perceived characteristics when in fact there are additional unseen factors that may only surface as effort is expended.

Each of the arrows emanating from situational characteristics have been drawn with dashed lines to signify

that these are potential causal paths but the actual coefficients will not be calculated. There are three reasons for drawing the paths in such a fashion: (a) situational variables constitute an important category of constraints and causes in expectancy theory and should be acknowledged in a model, (b) the current study involved a highly structured situation where all subjects experienced similar constraints in reality, and (c) values for the expectancy theory variables in this study were derived from measures of situational characteristics, hence the contributions of some situational variables are included in the model, just not as direct causes. Regarding the last point, James, Mulaik, and Brett (1982) noted that a causal model must be self-contained to produce unbiased parameter estimates. That is, all relevant variables that have causal impact on the endogenous variables must be included in the model. If additional unmeasured relevant variables exist, the endogenous variables cannot be fully explained by the incomplete model. The relationship among variables in the current study is unique. As explained in more detail later, the values for expectancies, instrumentality, and intended effort were derived from a policy-capturing task based on six situational characteristics (such as amount of personal support and difficulty of various requirements). Thus, the contributions of some relevant situational characteristics have been incorporated in the model. Introducing these situational

characteristics again as direct causes would introduce multicollinearity with the expectancy theory variables. Admittedly, inclusion of six situational characteristics in the policy-capturing task does not assure that all relevant situational variables have been included. Including a large number of situational variables that could potentially affect expectancy theory variables was beyond the scope of this project.

A box labeled personal characteristics has been included to represent a set of concepts that may have potential causal impact on intended effort. Lawler (1973) suggested that learning contributes to accuracy in expectancy judgments. That is, through past experiences in similar situations people develop more accurate assessment of their own capabilities and potential. The term personal characteristics is used here to subsume prior experiences, developed work habits, educational attainment, intellectual aptitude, etc. Operationalizing a full set of applicable personal variables was also beyond the scope of this project. A few relevant variables, such as age, education, work experience and aptitude, were included in this study to account for variance and to help specify the model.

#### Locus of Control as a Causal Variable

The four potential sources of control are shown in Figure 3 having direct causal impact on expectancies, instrumentalities, and valences. A higher score on each of

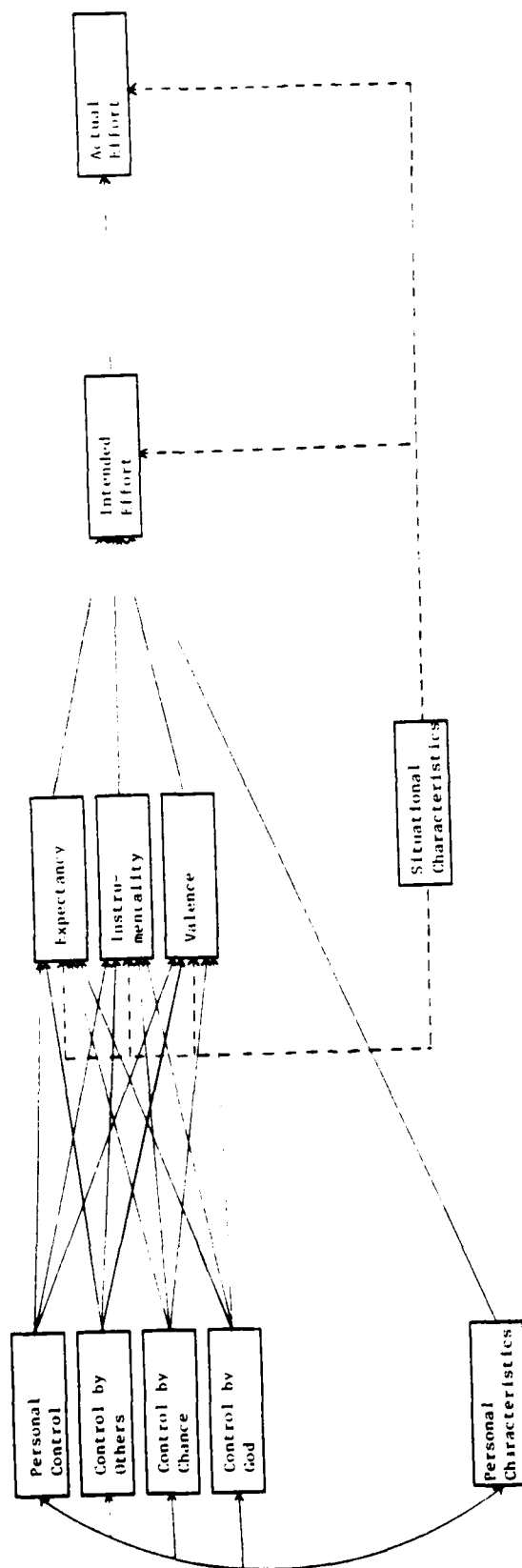


FIGURE 3. Path Model of Expectancy Theory with Locus of Control

the control variables indicates greater belief in that source. It was predicted that the path coefficients from personal control to expectancies, instrumentalities, and valence would be positive, and those from the other three sources would be negative.

#### Data Collection

Data for this study were collected in a policy-capturing task. This approach has been used to predict effort in coursework (Stahl & Harrell, 1981; Zedeck, 1977) and can help identify the cognitive processes for combining information as one decides to expend effort, perform at a certain level, or make organizational choices. For the current study, a policy-capturing approach was used to identify individual differences in motivation.

Different types of analyses were conducted to evaluate data for each subject and for the sample of subjects as a whole. Several tests of expectancy theory were made using the theoretically appropriate within-subjects approaches. Then, various within-subjects results (predicted effort, degree of predictability, etc.) were used in between-subjects analyses to test the various hypotheses regarding the relationship of locus of control and expectancy theory.

#### Method

##### Subjects and Situation

Air Force recruits in Basic Military Training (BMT) served as the subjects in this study. Although these were

relatively young adults and had met certain educational and aptitude requirements, they represented a diverse group in terms of family background, socio-economic status, work experience, reasons for joining the Air Force, etc. Based on interviews with recent graduates, it appeared that people differed in the level of effort displayed, outcomes desired, and performance on the various school tasks.

BMT is a six-week school. About 50 recruits form a flight under the leadership of a military training instructor (MTI) and assistant. Recruits are assigned various leadership duties but responsibilities are not extensive. Group achievement is emphasized and flights are evaluated as a whole with each person expected to contribute his or her best.

Individually, recruits are evaluated in the following areas:

1. Attitude and adaptability. Each week the MTI rates each recruit as either satisfactory or unsatisfactory. MTIs are told to base this rating on a recruit's attitude and self discipline, motivation, personal hygiene, emotional stability, adaptability at group living, teamwork, integrity, sincerity, consideration, and moral standards (BMT regulation 50-1). In general, this rating appears to be a subjective evaluation of how well the recruit can understand and adapt to the requirements of BMT. Repeated unsatisfactory ratings may result in dismissal or recycling (the recruit is

reassigned to another flight in which training is at an earlier stage).

Various discrepancies in reporting, saluting, wear of uniform, bearing, or personal conduct may also enter into the weekly attitude and adaptability ratings. Recruits carry two BMT evaluation forms with them at all times. Anyone on the training staff may require a recruit to hand over one of the forms to record an observed discrepancy. The discrepancy is noted and the form returned to the appropriate MTI for use in weekly ratings. BMT evaluation forms may also be used to notify the MTI of some outstanding characteristic or action by a recruit.

2. Academics. At the beginning of BMT each recruit receives a text covering a diverse subject matter and a schedule of reading assignments. One hour each night is designated for mandatory study. There is a schedule for completion of chapter review exercises with demerits given for failure to meet deadlines. Lectures are used to supplement and expand the material. A 100-item comprehensive test is given on the 27th day of training with a score of 70 or better required. One reexamination is permitted, otherwise the recruit is recycled.

3. Area inspections. There are two formal inspections covering shoes, personal living area, security drawer, wall locker, and clothing drawer. The recruits' text gives extensive guidelines for polishing shoes, folding clothes,

arranging personal belongings, etc. A maximum number of demerits is allowed for each area of inspection. Reevaluations are conducted in areas exceeding the maximum.

4. Additional evaluations. Recruits must successfully complete certain physical fitness criteria (running, situps, pushups, etc.), complete 85% of the obstacles in a confidence course, perform required drill and reporting procedures, and complete marksmanship training. Most recruits accomplish these tasks successfully. Failure is often due to some physical problem which frequently results in dismissal. Because there is not much variability in these evaluations, they were not considered further in the current study.

Truly outstanding individual performance is recognized by designation as Honor Graduate and award of a service ribbon. The criteria are: satisfactory on all evaluations (attitude and adaptability, physical fitness, drill and reporting, marksmanship), no more than 50% of allowable demerits on both dormitory inspections, a score of 93 or higher on the academic test, and recommendation by the MTI and Squadron Commander. Up to 10% of each flight may be designated Honor Graduate.

Flights may be designated as Honor Flights if the majority of members are well above standards in all areas of inspection and evaluation. There are no direct measures of group achievement. Squadron Commanders subjectively determine which flights are to receive this distinction.



### Policy-Capturing Task

#### Overview of Task

For a within-subjects test of expectancy theory, a series of judgments of effort was necessary, as were the expectancies and instrumentalities to predict each judgment of effort. Expectancy theory could be evaluated for each subject in how well the variables, singly or in combination, predict intended effort across the judgment tasks. The intent was simple: to model various environmental characteristics of BMT that may influence effort decisions (i.e., choose a set of characteristics and vary levels of each to construct hypothetical descriptions of BMT) and obtain judgments of expectancies, instrumentality, and intended effort. These judgments were then used as data to evaluate the relationships among expectancies, instrumentality, and intended effort for each subject individually, and, in other analyses, for subjects as a group. Although the intent of the policy-capturing task was simple, the conduct was not. Each variable involved in this task is discussed in detail along with constraints and considerations.

#### Characteristics of BMT

For the policy-capturing task it was necessary to identify characteristics of BMT that affect a trainee's expectations and effort. A number of recent graduates were interviewed and indicated that the MTI is a very strong

influence on one's motivation to perform. School officials stated that the role of the MTI is to support and encourage trainees as the MTI takes them through the school. There is some variability in the tactics used by different MTIs, and, as expected, some variability in the perceptions of the trainees about their MTIs.

Recent graduates also identified support from BMT peers and family as strong sources of influence on motivation. School officials noted the diversity of family relationships among trainees.

Characteristics of the MTI, and support (or lack of) by peers and family constituted potential interpersonal sources of environmental influence on effort. The perceived difficulty of the major BMT tasks (academics, area inspections, attitude and adaptability requirements) was also a source of influence over choice of effort to expend. Trainees may evaluate these tasks and allocate their energy according to their ability to accomplish these tasks, consequences of applying energy or not, understanding of the tasks, etc.

These six BMT characteristics (MTI characteristics, peer and family support, and difficulty of academics, area inspections, adaptability requirements) were used to construct hypothetical descriptions of BMT. Each subject was asked to read each description and imagine how he would react if BMT characteristics were that way. Having read a

hypothetical description, a subject would answer several questions about expectancy for high and low effort, instrumentality of effort, and intended effort in that hypothetical situation. In one portion of the analysis, for each subject, responses to these questions were regressed on the six BMT characteristics (separate regressions for each expectancy theory variable). This analysis showed the degree to which expectancies, instrumentality, and intended effort could be predicted by (based on) these characteristics, and which characteristics were most important for a particular person. Later, the regression equations were used to derive predicted values for expectancy theory variables for additional analyses.

To determine which BMT characteristics were considered by a subject in making his judgments, the six characteristics should be uncorrelated. A factorial combination of levels of the characteristics would produce orthogonality, but the number of combinations would become very large with several levels of each characteristic. For the current study only two levels of each characteristic were used. A total of 64 hypothetical descriptions were constructed with characteristics being orthogonal ( $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$ ). An example of a hypothetical description is shown at the top of Figure 4. The paragraph at the top of Figure 4 illustrates the six BMT characteristics that were used for the hypothetical descriptions. Underlined are the two values

Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMTS is. Then answer the five questions below. Do not answer the questions for how BMTS really is, but for how the paragraph says to imagine it.

BMT: Your MTI is very (or the opposite: not very) helpful, understanding, and supportive. The other members of your flight give you lots of (not much) help and encouragement. Your parents, friends, or wife are (are not) very supportive. The requirements for your dormitory inspections are simple and easy to do (difficult and hard to do). Academics are simple and require very little study time (difficult and require lots of study time). It is very easy (very hard) to get satisfactory weekly ratings in attitude and adaptability.

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give a lot of effort (extra time studying, helping other members of your flight, following inspection instructions, etc.) how likely do you feel that you will pass all areas of the BMTS described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
| 2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.) how likely do you feel that you will pass all areas of the BMTS described in the paragraph?                                | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
| 3. How much effort do you think you would want to put out in all areas of the BMTS described in the paragraph?  | 1. Very little effort<br>2. Some effort<br>3. Moderate effort<br>4. Much effort<br>5. Maximum effort  |
| 4. Given the level of effort you just indicated, how well do you think you would do in all areas of the BMTS described in the paragraph?  | 1. Poorly<br>2. Below average<br>3. Average<br>4. Above average<br>5. Exceed requirements (Honor Graduate)  |
| 5. Given the level of performance you just indicated, how likely are you to get the outcomes that you rated earlier as most important?  | 1. Not likely to get them<br>2. A slight chance to get them<br>3. A medium chance (50-50) to get them<br>4. A good chance to get them<br>5. Very likely to get them |

Figure 4. Sample Judgment Task

for each characteristic that were used in factorial combination to produce all 64 descriptions. All 64 descriptions used in the actual task, along with four practice trials, are shown in Appendix A on pages 2 through 47 of Part II and pages 2 through 23 of Part III. Figure 4 also illustrates the questions (judgments) asked for each expectancy theory variable. Questions 1 and 2 address expectancies of task goal success for high and low effort, respectively. Question 3 asks for intended effort in that particular hypothetical BMT situation. Question 4 asks anticipated task goal success given intended effort, and question 5 asks the instrumentality of task goal success for obtaining attractive first-level outcomes. Greater detail on the development of these questions (judgments) is provided in the following section.

Before turning to the discussion of judgments, note that a dilemma sometimes occurs in building hypothetical descriptions with orthogonal cues where some of the descriptions are nonsensical or contradictory. In this study, the various combinations of interpersonal support and school requirements were deemed believable. These sources of interpersonal support and school requirements are independent in the actual BMT situation and were regarded as independent in the hypothetical situations.

### Judgments

The purpose of the policy-capturing task was to obtain values for expectancy theory variables and subsequently use these values to evaluate relationships among variables for each person. This within-subjects approach was theoretically appropriate and expected to yield stronger relationships among variables than between-subjects approaches.

In this study, the task of operationalizing each expectancy theory variable was guided by three considerations: (a) variables must be theoretically appropriate, (b) findings from research should be incorporated, and (c) the tasks required of subjects should be as simple as possible. The third consideration was not easy to achieve in a policy-capturing task. Each subject would be asked to read 64 hypothetical descriptions of BMT and answer questions (make judgments) for each description. If subjects were asked for each description to provide expectancies for several levels of effort, instrumentalities for all outcomes, valence of all outcomes, and intended effort, the experimental task would have been overwhelming. Therefore, it was necessary to operationalize each variable in the simplest way possible, yet keep the measurement consistent with expectancy theory. To that end, this study

drew upon findings from previous research to guide decisions. The operationalization of each expectancy theory variable is discussed in detail in the following sections.

Task goals. Rather than require judgments for each major area of BMT, a single task goal was specified as passing all areas collectively. This made it impossible to tell which areas of evaluation were influenced more by each of the six characteristics. However, recruits knew that they must meet certain minimum criteria in all areas to pass BMT. Different individuals may exert more effort in one area than another, but they must pass all areas. Therefore, the aggregation of criteria into an overall task goal was appropriate.

Effort. Effort has been operationalized in a variety of ways, such as asking people how hard they worked at a task (Lawler & Suttle, 1973), how much time they spent on a task or in studying (Kennedy, Fossum, & White, 1983; Kopelman, 1977; Lied & Pritchard, 1976; Mitchell & Nebecker, 1973; Peters, 1977; and Turney, 1974) or simply how much effort they put into a task with no particular definition given (Broedling, 1975; Ilgen, Nebecker, & Pritchard, 1981; Muchinsky, 1977; Stahl & Harrell, 1981). Campbell and Pritchard (1976) noted the lack of construct validity of effort measures. Although no research has established the validity of one operationalization over another, it seemed prudent to specify effort in concrete behavioral terms,

rather than leave effort up to the imagination of the respondent. For the current study there were behavioral examples of effort within each major area of evaluation at BMT.

In academics, time spent studying is an appropriate measure of effort. Spending extra time (beyond the 1 hour daily mandatory study), early completion of review exercises, and taking time to help fellow recruits are examples of high effort. Failure to complete review exercises or waiting to the last minute to do them, and horseplay, sleeping, or daydreaming during mandatory study periods are examples of low effort. Although classroom participation is limited, asking questions, paying attention, taking notes, etc. would indicate some level of effort. Sleeping or daydreaming are certainly examples of low effort.

Attention to details appeared to differentiate effort in area inspections. The inspection requirements are so detailed that recruits must spend considerable time referring to the study guide instructions when preparing for each inspection. Low effort is typified by shortcutting steps, not consulting the study guide, or failing to ask for help if needed.

There are many behaviors that enter into attitude and adaptability evaluations. High effort would be reflected in spending extra time on personal appearance (maintenance of uniform), studying rules of conduct and military courtesy



(reporting, saluting, etc.), and assisting fellow recruits in these matters. Also, high effort is shown in quality performance of assigned duties and cooperation with superiors. Conversely, low effort is typified by little expenditure of time and energy to learn the rules or help others. Apathy or resistance to authority are quite visible in this tightly structured environment. Self-discipline is necessary for optimal use of time.

In general, use of time is a crucial factor in determining level of individual effort. Many of the requirements of BMT are unique and unfamiliar to most people. To excel in the various areas of evaluation a person must spend the time to learn the rules.

Expectancies. Individual expectations that effort will lead to task goal attainment are typically measured as probabilities (Campbell & Pritchard, 1976; Mitchell, 1974). To determine how people view this probabilistic relationship, several levels of effort should be compared to several levels of goal attainment. Most researchers, however, have only asked for the probability of one level of effort (high) leading to one level of goal attainment (success). Kopelman (1977) and Kennedy, Fossum, and White (1983) found that predictions based on the difference between expectancies for high effort and expectancies for low effort were superior to predictions from high effort alone. Note, however, that in both of these studies, the expectancy variable was actually a

combination of expectancies and instrumentalities. In other words, they asked for the probability that high and low effort would result in obtaining a variety of first level outcomes.

In this study two levels of expectancy were measured: one for high effort and one for low effort, both leading to successful completion of BMT (the task goal). Measuring expectations for two levels of effort should help reveal whether a person actually believed that effort made a difference. For example, if a person held similar expectations that high and low effort had the same result, either that person saw very little relationship between effort and task accomplishment, or the task was so simple that little effort was required in the first place. Expectations for high effort alone could not reveal this situation and could lead to false conclusions. The greater the difference between high and low effort expectations, the greater the perceived utility of effort and the greater the effort predicted (Kopelman, 1977). As individual antecedent variables, expectancy for high effort should relate positively to intended effort and expectancy for low effort should relate negatively. Questions 1 and 2 in Figure 4 addressed expectations. Behavioral examples of high and low effort were given, with at least one example relevant to each major area of BMT evaluation.

It was noted above that to determine how people view the probabilistic relationship of effort and goal accomplishment, expectancies should be evaluated for several levels of effort and several levels of the goal. In this study the subjects evaluated expectancies for two levels of effort but only one level of the task goal (success). Using only one level of the goal may detract from complete understanding of the relationship of effort and goal expectancies. But such an approach helped limit the number of questions per hypothetical description. Also, due to the nature of the tasks at BMT, success was the most reasonable level to include. It would have been nice to assess expectations of high and low effort leading to goal failure, but (a) presumably all of the recruits anticipated success (else they would not have enlisted) and (b) the purpose of this study was to evaluate the degree of effort applied toward BMT success, not the characteristics of the effort-goal relationship per se.

Instrumentality and valence of outcomes. There is no consensus among researchers as to the exact meaning, content, or level of specificity of outcomes (Mitchell, 1974). For the current study, the terminology of Campbell and Pritchard (1976) was used. Task goals refer to the performance criteria in each major area of BMT (e.g., scores on the academic test, number of demerits, attitude ratings, etc.). First-level outcomes (e.g., designation of Honor Graduate,

sense of accomplishment, etc.) are directly contingent upon accomplishing task goals. Second-level outcomes are more long range and serve to satisfy more basic needs such as job security, career development, improved financial status, etc. These outcomes were not addressed.

There is debate among researchers as to the number and type of outcomes (intrinsic or extrinsic, positive or negative) to be used. Some suggest all possible outcomes be evaluated, whereas others reason that too many outcomes may lead to unreliability in assessing valence. Several studies have shown that 10 to 15 outcomes are sufficient (Leon, 1979; Parker & Dyer, 1976; Schwab et al., 1979) with as few as four being acceptable (Shiflett & Cohen, 1980). Schwab et al. (1979) found that greater variance explained occurred for positively scaled ratings of outcome desirability. Ilgen et al. (1981) found attractiveness ratings superior to several alternatives. Predictability of the expectancy theory model was not enhanced by distinctions between intrinsic and extrinsic outcomes, or by inclusion of negative outcomes in Parker and Dyer (1976). For the current study, a relatively short list of first-level outcomes (10 to 15) was rated according to their attractiveness. All outcomes were stated positively, with no distinction made during analysis as to whether outcomes were intrinsic or extrinsic.

Interviews with school officials and recent graduates revealed the following potential BMT outcomes:

- develop self-discipline
- be an Honor Graduate or member of an Honor Flight as a matter of personal pride and accomplishment
- prove oneself to parents (or spouses)
- avoid recycling
- out perform sister flight
- make MTI look good or bad
- earn the Honor Graduate ribbon as a sign of success
- earn respect of peers
- learn about the Air Force
- do well because some relative was in the military
- do patriotic duty
- keep a job

A pilot study was conducted with the full set of experimental materials administered to 44-man flight. Only one person added an outcome to this list (retirement, which is a long range outcome). All of the outcomes above were included in the top five by some of the subjects (frequencies of use ranged from low by 4 subjects to a high by 36).

Wanous et al. (1983) used a technique they called implicit weighting to assess outcome valence and instrumentalities simultaneously. They developed this technique to avoid the problem of multiplying two nonratio level measures. Each subject first sorted 15 outcomes into

categories of 5 each according to high, medium, or low importance. Next each subject rated the instrumentality of each alternative (this was a school selection task) for obtaining each of the 15 outcomes. For prediction of school attractiveness, the sum of the instrumentalities for the five most important outcomes was found to be as suitable ( $r = .63$ ) as was the sum of valence ratings multiplied by instrumentalities for all 15 outcomes ( $r = .65$ ). Also, in predicting effort to attend a particular school, expectancy ratings times the sum of the instrumentalities for the five most important outcomes was superior ( $r = .64$ ) to expectancies times the sum of the product of all 15 valence ratings and instrumentalities ( $r = .56$ ).

This implicit weighting technique was modified to help simplify the subjects' tasks in the current study. At the beginning of the policy-capturing task, subjects selected five outcomes from a list that were most attractive to them, and then rated those five on an attractiveness scale. This task is shown on pages 2 and 3 of Part I, Appendix A. For each of the 64 hypothetical descriptions, a subject indicated (a) how much effort he would exert, (b) how well he thought he would do (anticipated task goal success) given that level of effort, and (c) how likely he would be to obtain the five most attractive outcomes, given anticipated task goal success. These are questions 3, 4, and 5 in Figure 4. The last question addresses the instrumentality of anticipated

task goal success for the five most attractive outcomes taken as a set. Because the most attractive outcomes remained the same across all 64 descriptions for each subject, there was no variability in outcome ratings (valence) and the instrumentality judgment alone served as a predictor of effort. Other analyses made use of differences in outcome attractiveness ratings across people.

Two drawbacks to the implicit weighting procedure are acknowledged. First, the procedure implies that outcomes are independent of situational characteristics, which may or may not be true. To minimize any problems or confusion, subjects were reminded to evaluate the instrumentality of anticipated task goal success for the same outcomes in each hypothetical description. The second drawback is similar to the issue discussed earlier regarding the relationship of effort and task goal accomplishment. To fully understand instrumentality relationships it would be necessary to assess beliefs for several levels of task goal accomplishment leading to several levels of outcomes. But, the purpose of this portion of the study was to evaluate how well the expectancy theory model predicted effort, not to analyze instrumentality relationships per se. Thus the operational definition of instrumentality using this procedure was the likelihood of attaining a set of attractive first-level outcomes, given anticipated level of task goal success given intended effort. Level of anticipated task goal success was

free to vary according to intended effort, but attractiveness of outcomes remained the same for all hypothetical BMT descriptions for a particular subject.

#### Summary of Policy-Capturing Task

Subjects indicated the five most attractive BMT first-level outcomes from a list provided and then rated the attractiveness of each. Next, subjects read the first of 64 hypothetical descriptions of BMT. Each description was based on six characteristics of BMT, with various combinations of levels (high and low) of each characteristic. For each description, subjects made five judgments (expectancies of task goal success for high and low effort, intended effort, anticipated task goal success given intended effort, and instrumentality of anticipated task goal success for obtaining attractive first-level outcomes).

After completing the questions for all 64 descriptions, the subjects indicated the level of the six characteristics used in the descriptions as they perceived them to actually exist at BMT (i.e., they indicated whether their peers were supportive or not, whether area inspections were difficult or not, etc.). These questions are shown on page 25 of Part III, Appendix A. Then subjects were asked to answer the same five questions they had answered in each of the 64 hypothetical descriptions, but this time the questions were



based on their perception of the actual BMT situation. These questions are shown on page 26 of Part III, Appendix A. The data were used for various analyses across subjects.

#### Additional Expectancy Theory Data

In addition to the policy-capturing task, several questions were asked to develop data for exploratory analyses. These questions are shown on pages 4 through 7 of Part I of Appendix A. The intent was to explore another within-subjects method for evaluating expectancy theory. However, the design provided only three data points for each subject and the findings are not deemed stable enough to report here.

#### Peer Ratings

Peer ratings in each of the three major areas of BMT (academics, area inspections, attitude and adaptability) were used to provide a more objective assessment of effort than self-ratings. A coding system was used to identify members of the flight that insured anonymity. Subjects rated as many of their peers as they felt they could but not themselves. They were allowed to omit ratings of anyone they did not know well enough to rate. Detailed examples of effort for each area of evaluation were provided. Note that subjects were instructed to rate effort of their peers in various BMT areas, not performance. The rating form is on pages 8 through 10 of Part I, Appendix A. The mean peer rating for

each person was calculated for each of the three BMT areas. Also, an overall peer rating was derived from the grand mean of all ratings on each person across all three BMT areas.

#### Locus of Control

The three-part Levenson Personal, Powerful Others, and Chance scale is shown on pages 11 and 12 of Part I, Appendix A, along with a scale developed by Kopplin to measure control by God. These 32 items were randomized for presentation. Responses were made on a six-point scale anchored from strongly agree to strongly disagree. The subscale scores were the sum of item responses, with strongly agree valued as 6, agree somewhat valued as 5, and so on.

The 23-item Internal-External Scale developed by Rotter (1966) was also administered and is shown on pages 27 and 28 of Part III, Appendix A. Although Levenson's multi-dimensional scale was proposed to be the appropriate measurement device, Rotter's scale was included to provide additional data for potential exploratory analyses.

#### Personal Characteristics

Recent graduates stated that some recruits had trouble at BMT because they could not use their time effectively or were unable to do some relatively simple tasks such as washing clothes, shining shoes, etc. Graduates also stated that recruits who came from homes where they had little responsibility often had a more difficult time adapting to

BMT. Thus, it seemed useful to assess the degree to which one's background (family relationships, study habits, etc.) affected behavior at BMT.

The History Opinion Inventory (HOI) was developed by the Air Force to predict success at BMT and subsequent service attrition. It contains individual items covering school behavior and attitude, family relations, work history, and various self-perceptions. There is evidence that this inventory does predict short- and long-range attrition (Laurence & Means, 1985). The HOI produces several scale scores: Prediction of Emotional Instability (PEI) to measure characteristics associated with emotional maladjustment; Prediction of Drug Abuse (PDA) to measure characteristics associated with the acknowledgment of previous drug use; and a composite scale called the Adaptation Index (ADI) to identify recruits in a "high-risk" group. Although a cutoff score on the ADI has been used by the Air Force to categorize recruits, scores were treated as continuous in the current study to represent a continuum of adaptability to the military environment. The HOI is shown on pages 29 and 30 of Part III, Appendix A.

Scores on the Armed Service Vocational Aptitude Battery (ASVAB) were available on most of the recruits in the current study and were collected from the flight roster. The ASVAB provides weighted composite scores in four areas: mechanical,

electrical, administrative, and general. There are minimum requirements to enter the Air Force and for placement into job specialties based on these scores.

Several demographic questions were included (e.g., age, prior employment, education, etc.). Additional questions were included to help clarify results (e.g., have you been recycled?) or to address questions for BMT officials. The additional questions and demographics are shown on pages 31 and 32 of Part III, Appendix A.

#### Procedure

Data for this study were collected via three-part questionnaire. The full set of materials is included in Appendix A. Six flights were surveyed over a two month period, each on a Saturday morning. As requested, each flight was in, or within several days of, the 20th day of training. Timing the survey about the 20th day insured that recruits were thoroughly familiar with all BMT procedures but were not so far along that they had already received major evaluations. All participants were males. The flights ranged in size from 32 to 46. For each session some flight members were expected to be absent for details, sick call, etc. Only once was it necessary to excuse a subject for an appointment during a session.

Once the recruits were seated and their books and personal belongings put away, the experimenter introduced himself and explained the purpose of the session. A handout

was provided and recruits were asked to read along as this information was read aloud. A copy of this handout is shown in Appendix A. Recruits were asked if there were any questions and explanations were provided accordingly. The first two parts of the questionnaire were handed out and recruits were asked to put their unique identification number on each booklet. This identification number was shown beside each recruit's name on a chalkboard in the room. The identification number was simply a two digit number assigned randomly to the flight roster. Recruits were assured that once the board was erased there would be no further association of that number with their name. The board was erased in front of them later in the session.

Detailed instructions were provided for each major task. In most cases the printed instructions were read aloud while the recruits followed along. Explanations were provided upon request. In the policy-capturing task four hypothetical descriptions were shown as examples. In one description the six cues were all positive, and in another they were all negative. The other two were mixed. The experimenter stressed how a person would be likely to react differently in such diverse situations. Subjects answered the five questions for each of the four examples before starting on the 64 hypothetical situations.

Because some of the major tasks were rather complex, the recruits were told to wait at a certain page before

proceeding. The experimenter watched their progress and did not proceed until everyone was finished with a particular section. Those finishing a section early were permitted to relax, read, study, etc., but not to talk or leave the room. Each of the three parts required about 40 minutes. A 15 minute break was given after Part II. After the break, Part III was distributed and recruits were told to add their identification number to that booklet. At the end of the session additional questions were answered, the recruits again thanked for their help and reminded of the handout with the experimenter's address if they would like a copy of the results. In a number of cases, individuals remained to discuss the task or to talk about military topics in general.

#### Evaluation of Data

##### Sample Size and Incomplete Data

Across the six sessions, 257 recruits participated. The questionnaires were reviewed for completeness and the responses entered into a database for analysis. In 12 cases, subjects did not complete large sections of the questionnaire and their responses could not be analyzed. These 12 were dropped from the study. Fifteen questionnaires had a few missing responses but none appeared so deficient as to warrant dropping (hence some analyses reported later show slightly different sample sizes). In 23 cases, responses to the five questions in the policy-capturing task were either very similar or identical across all 64 hypothetical

descriptions. Although it is impossible to tell why these subjects chose that response pattern, these data were considered valid and were included in all analyses, even though lack of variability reduced within-subjects correlations and regression results to zero. Thus, a total of 245 questionnaires were available for analysis. (Note that between-subjects correlation coefficients among the major variables in this study were computed with and without the 23 cases mentioned above. Comparisons of the correlation coefficients in the two data sets revealed only minor differences.)

#### Differences Across Flights

Because these data were collected from six different flights, an analysis of variance was conducted for the major variables to determine whether data could be combined across flights. No significant differences (at  $p < .05$ ) were detected for Levenson locus of control variables or most of the personal characteristics (age, self or father's education, ASVAB scores). Note that the power of the analysis of variance for each of these variables was small, given the small overall differences in means and variance across flights. Power ranged from about 0 to .30. Only the Adaptation Index (ADI) and peer-rated effort showed significant mean differences across flights. The highest ADI mean was 6.02 compared to the lowest of 4.04 where the range for the scale varies from 0 to 31.4. For peer-rated effort,

the highest mean was 3.75 compared to lowest of 3.28 where the scale range was 1 to 5. Descriptive statistics for all of these variables are shown by flight in Appendix B.

Although the power of analysis of variance to detect small differences across flights was low, such differences would not adversely affect the findings of the study. Small differences in one variable may decrease its correlation with another variable, but would not invalidate findings. Large differences would have been evidence of poor random assignment of recruits to flights, unique impact of some variable in one or two flights, different treatment of flights by the experimenter, and so on. Because large differences in mean values were not detected across flights, combining data for further analyses was deemed justified.

#### Practice Effects in the Policy-Capturing Task

Four hypothetical BMT descriptions were used to explain and practice the policy-capturing task. Because the 64 descriptions were created to be orthogonal, the four practice descriptions were later repeated within the set of descriptions. It was a concern that using these four descriptions for practice would limit responses when subjects encountered these same descriptions later in the task. Two analyses address this potential problem. First, if practice (or carryover from group discussion) had an impact, the variability of judgments made for these descriptions would



probably be restricted relative to variability in all other descriptions. Recall that for each description subjects made five judgments: expectancy for high effort, expectancy for low effort, intended effort, anticipated task goal success, and instrumentality of the task goal success for obtaining the most desirable outcomes. Table 2 shows the variability for judgments made to the four practice descriptions, variability for the same descriptions later in the task, and the mean variability for judgments across the remaining 60 descriptions. There is no evidence that variability suffered from practice or group discussion. In almost every case, the standard deviation of judgments in the later occurrence of a description was higher than that during practice. Furthermore, variability of responses in later descriptions was quite comparable to that in other descriptions not used for practice.

Another way to evaluate practice effects is to look at the correlation of judgments from a practice description and the corresponding description later in the set. For example, across all subjects, judgments of expectancy for high effort in the first practice description were correlated with the judgments of expectancy for high effort in the later description having the same cues. Because there are five judgments made for each description, five correlation coefficients were calculated for each of the four practice descriptions (a total of 20 correlation coefficients). These

Table 2  
Variability in Judgments Across BMT Hypothetical Descriptions

Hypothetical Description	Standard Deviation of Judgments				
	Expectancy High Effort	Expectancy Low Effort	Intended Effort	Anticipated Task Goal Success	Instru- mentality
<u>Practice</u>					
Cue Pattern 64	1.02	.52	1.54	1.11	1.19
Cue Pattern 1	.37	1.02	.95	.67	.85
Cue Pattern 22	.66	.91	.88	.67	.83
Cue Pattern 37	.86	.92	1.07	.77	.96
<u>Actual</u>					
Cue Pattern 64	1.02	.79	1.39	1.01	1.23
Cue Pattern 1	.65	1.10	1.01	.83	.92
Cue Pattern 22	.87	1.04	.94	.83	1.03
Cue Pattern 37	.99	.95	1.17	.91	1.14
<u>Mean Standard Deviation of Remaining 60 Descriptions</u>	.85	.99	1.00	.83	1.03

correlation coefficients fell between .30 and .50 except for one at .07. The magnitude of these correlations suggests that subjects were not particularly swayed by the group discussion and made independent judgments when presented with the same descriptions later in the task. On the negative side, these generally low correlations suggest some inconsistency in judgments. However, it is likely that subjects changed their judgments in later descriptions because by then they had formulated policies that lead to judgments different from those during practice.

## Results

### Overview of Analyses

The analyses were conducted in a systematic order according to hypotheses and method of analysis. Hypotheses fit into two categories: tests of the general expectancy theory model, and tests of the relations among expectancy theory variables and locus of control beliefs. Both within-subjects and between-subjects analyses were used for the various hypotheses. Figure 5 illustrates the organization of the analyses.

The process used for deriving values for variables is discussed at the beginning of each section, followed by the analysis of each hypothesis using each method. Hypotheses are stated in each section. Summary statistics are presented for variables where they are first discussed.

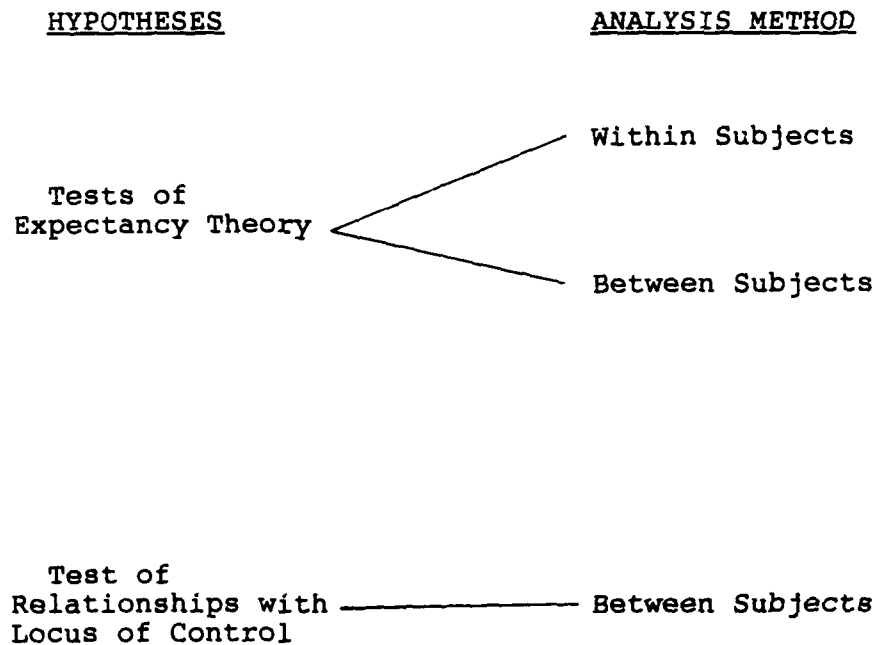


FIGURE 5. Analysis Schematic

### Tests of the Expectancy Theory Model

#### Policy-Capturing Task

Expectancy theory variables. For each of the 64 hypothetical descriptions of BMT there were judgments of (a) expectations for high effort, (b) expectations for low effort, (c) intended effort, (d) anticipated task goal success, and (e) instrumentality of the anticipated task goal success for obtaining the most desirable outcomes. At the end of the task, subjects rated each of the six BMT characteristics in the descriptions as they personally perceived them to actually exist at BMT and then answered the same five questions (judgments) based on the actual BMT characteristics.

Multiple regression was used to derive a policy equation for each subject for each expectancy theory variable. Separate regression equations were calculated for expectancies for high effort, expectancies for low effort, instrumentality, and intended effort. Anticipated task goal success (question 4) was only an intermediary variable in the development of instrumentality, hence a regression equation was not calculated for it. Each judgment was regressed separately on the six situational cues across the 64 hypothetical descriptions. The individual regression equations were used to calculate predicted values for each expectancy theory variable for each person. To produce these predicted values, the rating of each cue provided by each

recruit (of how he perceived the actual BMT situation) was applied to the regression equation for each variable. Table 3 illustrates this step for one subject. This procedure provided a regression-based predicted value for each person for expectancy for high effort, expectancy for low effort, instrumentality, and intended effort.

The multiple Rs for each person's policy equations express the extent to which that person relied on the six cues as the basis for his judgments for each variable. The range of multiple Rs for all subjects is shown in Table 4. Obviously, the relevance of the six cues in modeling BMT was critical to the policy-capturing task and subsequent prediction of values for expectancy theory variables. These particular cues were chosen after extensive interviews with BMT officials and recent graduates. A pilot study indicated that these cues represented important areas affecting recruits' behavior. The frequency of ratings of the ease or difficulty of each cue shows that subjects viewed the BMT situation (cues) differently. These ratings are summarized in Table 5.

The appropriateness of the cues can be further evaluated by inspecting the pattern of ratings provided by recruits as they perceived the actual BMT situation. For example, the pattern where all cues were rated as 1 would indicate that a subject felt everyone was supportive (MTI, peers, family) and all requirements were easy (area inspections, academics,

Table 3  
Derivation of Predicted Variables for One Subject

Cue Ratings in Actual BMT Situation	
<u>Cue</u>	<u>Rating</u>
1. MTI Characteristics	0 (not helpful, supportive)
2. Peer Support	1 (much help)
3. Family Support	1 (very supportive)
4. Area Inspections	0 (difficult)
5. Academics	1 (simple)
6. Attitude and Adaptability	0 (difficult)
Rating	

Policy Equations and Predicted Values			
<u>Variable</u>	<u>Regression Equation</u>		
Expectancy High Effort	= 3.59 - .13xCue1 + .06xCue2 + .69xCue3 + .31xCue4 + .25xCue5 + .19xCue6		
4.59	= 3.59 - .13x(0) + .06x(1) + .69x(1) + .31x(0) + .25x(1) + .19x(0)		
			.60
Expectancy Low Effort	= 1.75 - .19xCue1 + .06xCue2 + .44xCue3 + .31xCue4 + .44xCue5 + .25xCue6		
2.69	= 1.75 - .19x(0) + .06x(1) + .44x(1) + .31x(0) + .44x(1) + .25x(0)		
			.42
Intended Effort	= 3.11 - .09xCue1 + .03xCue2 + .84xCue3 + .09xCue4 - .03xCue5 + .09xCue6		
3.95	= 3.11 - .09x(0) + .03x(1) + .84x(1) + .09x(0) - .03x(1) + .09x(0)		
			.47
Instru- mentality	= 2.02 + .28xCue1 + .47xCue2 + 1.03xCue3 + .09xCue4 + .28xCue5 + .09xCue6		
3.80	= 2.02 + .28x(0) + .47x(1) + 1.03x(1) + .09x(0) + .28x(1) + .09x(0)		
			.61

Table 4  
Summary of Regression Results for All Subjects in the Policy-Capturing Task

Judgment Variable	Multiple R					
	Low	High	Mean	25th%	Median	75th% SD of R
Expectancy High Effort	.000	.969	.611	.474	.669	.774 .209
Expectancy Low Effort	.000	.919	.583	.454	.622	.740 .193
Intended Effort	.000	.975	.556	.359	.603	.745 .243
Instru- mentality	.000	1.000	.597	.436	.651	.778 .222



Table 5

## Frequency of Cue Ratings

Rating <sup>a</sup>	Cue 1	Cue 2	Cue 3	Cue 4	Cue 5	Cue 6
1	216	185	233	129	149	191
0 <sup>b</sup>	29	59	12	115	95	52

Note. Cue 1 = MTI characteristics. Cue 2 = Peer support.  
 Cue 3 = Family support. Cue 4 = Area inspections.  
 Cue 5 = Academics. Cue 6 = Attitude and adaptability ratings.

<sup>a</sup>For cues 1, 2, and 3 a rating of 1 = supportive, 0 = not supportive. <sup>b</sup>For cues 4, 5, and 6, a rating of 1 = easy, 0 = difficult. <sup>b</sup>In the experimental materials subjects were asked to rate cues 1 or 2. The 2 was changed to 0 in the analysis.

attitude and adaptability ratings). Conversely, a pattern where all cues were rated as 0 would indicate no support and difficult requirements. The frequency of various patterns is shown in Table 6. Apparently many subjects had positive opinions about the various aspects of BMT addressed in the cues. Most subjects rated many of the cues as 1. However, there was variability in the ratings and cue patterns that suggests these six cues tapped areas of BMT that might cause different behavior for different people. The relevance of the cues is important when these ratings are combined with regression weights to calculate values for the expectancy theory variables. Had there been no variability in cue ratings, the relevance of the cues would have been suspect in the policy-capturing task.

Personal characteristics. Several personal characteristics were measured in this study. These measures were included to follow the suggestion by Lawler (1973) that learning contributes to accuracy in expectancy judgments, and also to provide data to seek additional contributors to understanding the expectancy theory model. Two variables were selected a priori to be included in the model: the Adaptation Index (ADI) from the History Opinion Inventory, and the general composite score from the ASVAB. The ADI was chosen because it has been used by the Air Force as a predictor of adaptability to the military. The ASVAB general composite score was chosen because it represents the most

Table 6

## Frequency of Cue Patterns

Pattern <sup>a</sup>	Frequency
000001	1
001000	2
001001	1
001010	1
001011	1
001100	3
001101	1
001111	2
011000	4
011001	1
011010	1
011011	5
011101	2
011110	1
011111	2
100010	1
100111	3
101000	4
101001	7
101010	1
101011	11
101100	2
101101	5
101111	13
110100	2
110101	1
110110	1
110111	3
111000	14
111001	18
111010	9
111011	31
111100	4
111101	22
111110	2
111111	60

<sup>a</sup>There are 64 possible cue patterns with six cues and two levels per cue. Only those actually used by at least one subject are shown here. The cues are shown in the order in which they were presented to the subjects: MTI support, peer support, family support, area inspections, academics, attitude and adaptability ratings.

general aptitude measure, having both verbal and quantitative components. The ASVAB general composite is used as a standard for enlistment (resulting in a small restriction in range). Two additional variables, father's education and subject's education, were chosen based on their significant correlations with the various expectancy theory variables. Other variables that were not significantly correlated with the expectancy theory variables were omitted because they could not contribute to understanding of the model if they did not share variance with any variables of interest. The matrix of correlations among all personal characteristics and expectancy theory variables is included in Appendix B.

Within-subjects tests of expectancy theory. Expectancy theory has often been operationalized and evaluated using between-subjects experimental designs. Conceptually, however, expectancy theory ought to be evaluated in how well choices can be predicted for a single person. In this study both approaches have been used. Within-subjects approaches are used here to evaluate the basic expectancy theory predictions. Between-subjects designs are used to test hypotheses about locus of control beliefs and causal relationships with expectancy theory variables. But such investigation of causal relationships is justified only if expectancy theory can reasonably model the data.

In this section, data from the policy-capturing task were used in regression analyses to evaluate expectancy

theory for each subject. For each of the hypothetical situations, each subject made a judgment of expectancy for high effort, expectancy for low effort, intended effort, anticipated task goal success, and instrumentality of the anticipated task goal success for obtaining the most desirable outcomes. Expectancy theory posits that the amount of intended effort is a function of expectations and instrumentalities in some combination. A simple additive model with interactions of expectancies and instrumentality was chosen. Thus, for each subject, intended effort was regressed on both expectancy measures, instrumentality, and the interactions of expectancies and instrumentality.

(Note that here intended effort was regressed on the judgments of the other expectancy theory variables across the 64 hypothetical descriptions, not on the six cues as reported in Table 2.) The results of these analyses are summarized in Table 7. For 52 of the 245 subjects the multiple coefficient of correlation ( $R$ ) was not statistically significant. The frequency distribution of  $R$ s in .1 increments is shown at the bottom of Table 7. The lowest  $R$ s occurred for those individuals who gave the same, or nearly the same, responses to each question across the 64 hypothetical situations.

The regression weights show that expectancy for high effort significantly predicted intended effort for 46 subjects. Expectancy for low effort and instrumentality significantly predicted intended effort for 36 and 66

Table 7

Summary of Regression Results for the Expectancy Theory Model for Each Subject

Low R	High R	Mean R	Median R	SD of R
.000	.986	.627	.702	.263

Frequency of R at .1 Intervals

<u>Interval</u>	<u>Frequency</u>
.00 - .09	17
.10 - .19	6
.20 - .29	7
.30 - .39	15
.40 - .49	20
.50 - .59	21
.60 - .69	36
.70 - .79	45
.80 - .89	44
.90 - 1.00	34

Note.  $N = 245$ . With degrees of freedom = 5,36, an  $F = 2.29$  is required for significant R at  $p < .05$ . To obtain a significant  $F$ , R must be greater than approximately .424.

subjects, respectively. In only 32 cases did the interaction terms contribute significantly to the prediction of intended effort. A summary of the frequency of the statistical significance of each variable is shown in Table 8. Note that these regression weights may be somewhat misleading. These weights were derived from simultaneous regression of intended effort on all variables and interactions. Because the independent variables were correlated to some degree (recall that these data are responses to questions), the regression weights do not necessarily portray which variable or interaction contributed most heavily to the relationship with intended effort. Stepwise regression would have been more suitable for that purpose, but the purpose here was to evaluate how well expectancy theory variables together could predict intended effort. The regression weights shown in Table 8 merely illustrate that expectancy theory variables, both individually and multiplicatively, serve as significant predictors of intended effort for some subjects.

The results of the within-subjects analysis suggest that the variables for expectancies and instrumentality are related to intended effort for most subjects, but with R as the criterion of how well expectancy theory predicts effort, there is wide variation among subjects. Locus of control will be evaluated in later analyses as one potential

Table 8

Summary of Statistical Significance of Expectancy Theory  
Variables in Regression Analysis

Regression Equation	
Intended = a + b <sub>1</sub> x Expectancy for High Effort + Effort            b <sub>2</sub> x Expectancy for Low Effort + b <sub>3</sub> x Instrumentality + b <sub>4</sub> x (Expectancy for High Effort x Instrumentality) b <sub>5</sub> x (Expectancy for Low Effort x Instrumentality)	
Regression Weight	Frequency of Significance
Expectancy for High Effort	46
Expectancy for Low Effort	36
Instrumentality	66
Expectancy for High Effort x Instrumentality	32
Expectancy for Low Effort x Instrumentality	32



contributor to the variation. But first, to further set the stage for such analyses, a between-subjects path analysis of expectancy theory is described.

Between-subjects tests of expectancy theory. A path analytic model of expectancy theory was shown in Figure 2. Values for expectancy theory variables were derived from each person's policy equation using the ratings of the six cues in the perceived actual BMT situation. Valence is included in this between-subjects analysis and consists of the total of the ratings for each person's five most attractive outcomes. Actual effort is the mean peer rating for each person (the mean of the ratings of effort for each of the three BMT areas across all ratings given to a particular person). Personal characteristics included the Adaptation Index, ASVAB general, father's education and subject's education. The zero-order correlations among these variables, along with means and standard deviations, are shown in Table 9.

The model shown in Figure 2 was analyzed with LISREL VI, a program which provides simultaneous solutions for linear structural equations. This program generates two types of information useful in evaluating the fit of a model to data: (a) estimates of path coefficients among variables, and (b) indices of the goodness of overall fit of the model to the data. Both standardized and unstandardized regression coefficients are shown for the full tested model in Figure 6. The fit indices are shown in Table 10. The LISREL VI program

Table 9

Zero-Order Correlations Among Variables in the Path Model of Expectancy Theory with Data Derived from the Policy-Capturing Task

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Exp High Eff	--									
2. Instrumentality	68**	--								
3. Exp Low Eff	27**	24**	--							
4. Valence	05	-01	-03	--						
5. Intended Eff	57**	61**	02	12	--					
6. Actual Eff	30**	25**	21**	10	27**	--				
7. Adapt Index	-25**	-22**	01	-12	-33**	-33**	--			
8. Self Ed	18**	14*	-04	-06	12	18**	-16**	--		
9. Father's Ed	24**	12	16*	-03	12	03	00	13	--	
10. ASVAB General	21**	08	-11	-08	03	19**	02	17*	08	--
Mean	4.15	3.98	2.54	21.55	4.17	3.42	5.21	4.67	4.97	64.59
SD	.68	.81	.92	2.64	.70	.43	2.95	1.02	1.87	18.26

Note. Decimal points have been omitted.  $N = 245$ .

\* $p < .05$ . \*\* $p < .01$ .

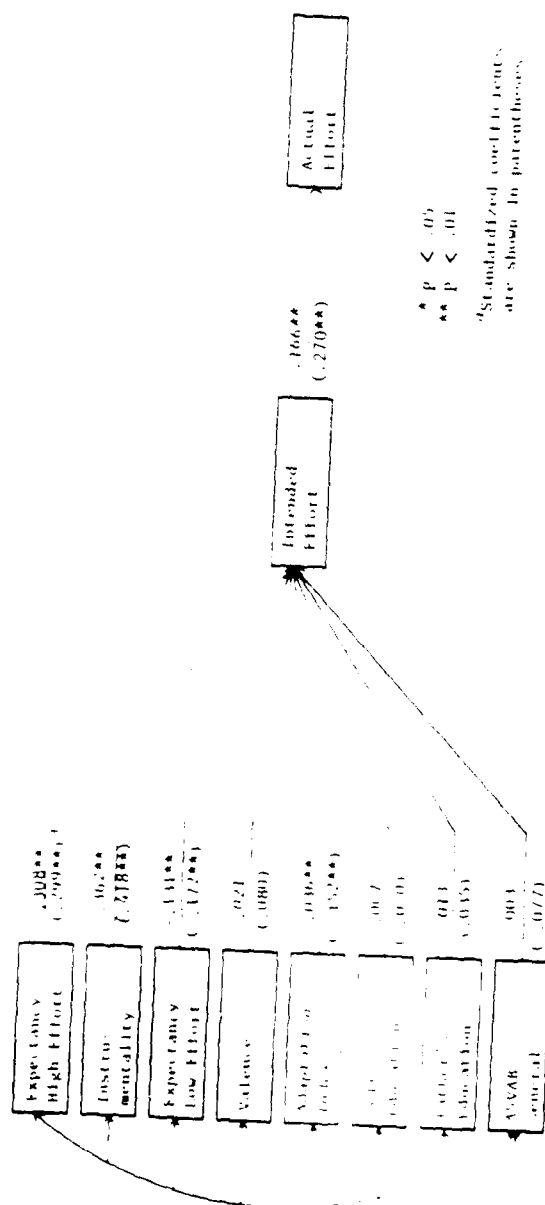


FIGURE 6. Analysis of Path Model of Expectancy Theory

Table 10

Goodness of Fit Indices for Path Analysis of Expectancy Theory Model

Test	Value	
Chi-square	50.57	( <u>df</u> = 8)
Goodness of fit	.964	
Root mean square	.198	
Coefficient of determination	.483	

and method are discussed in Appendix D. The discussion also addresses various assumptions required for the procedure and how well the data in the current study meet those assumptions.

The evaluation of a path model is somewhat artful because there are no statistical indicators that perfectly assess fit. Fit can be judged by evaluating the various sources of information provided by LISREL VI. In this study, the path coefficients are probably the most important statistical indicators to consider. Other studies have shown significant zero-order correlations among expectancy theory variables, and among those variables and locus of control measures. In the current study the intent is to view relationships simultaneously in potential causal order. The degree to which one variable contributes to change in another within a system of other variables is of primary interest. Path coefficients show the influence of variables on each other.

Now, turning to the results of the path analysis in Figure 6 and Table 10, the coefficient of determination indicates that 48% of the joint variation of the two dependent variables (predicted intended effort and actual effort) can be accounted for by the eight independent variables. The chi-square = 50.57 is significant ( $p > .0001$ ) with  $df = 8$  and is interpreted as rejecting the null hypothesis that the reproduced and original covariance

matrices are identical. However, this chi-square test is sensitive to sample size and multivariate distribution and should not be strictly interpreted as poor fit of the model (see discussion in Appendix D). Its usefulness is in evaluating changes to the model for better fit. The goodness of fit index and root mean square are reported in Table 8 for information.

Inspection of the model shows statistically significant ( $p < .05$ ) path coefficients from intended effort to actual effort, and from expectancies for both high and low effort, instrumentality, and the Adaptation Index to intended effort. These path coefficients are interpreted in the same way as regression coefficients (i.e., a unit change in a predictor variable  $x$  produces a change in the dependent  $y$  variable equal to the path coefficient times  $y$ , all other variables held constant). The signs of the path coefficients are consistent with expectancy theory. Increasing expectancies that high effort leads to performance and high performance leads to positive outcomes (instrumentality) should produce increases in intended effort. Increasing expectancies that low effort also leads to performance should decrease intended effort (why bother if effort does not contribute?). A high score on the Adaptation Index indicates greater emotional instability and potential for drug abuse which appears to lower the effort one intends to expend. Finally, an increase in intended effort is positively related to an increase in

actual effort expended. Valence did not turn out to be a statistically significant predictor of intended effort nor did the other personal characteristics. In summary, a linear additive path model fit the data according to the relationships proposed. None of the relationships were strong.

One technique often used in path analysis to improve fit is to modify some of the constraints in the model. Such modifications are purely exploratory and confirmation of revised models should be performed with new data. Exploratory results are reported here only to suggest further research. Joreskog and Sorbom (1984) developed modification indices using a change in chi-square as the criterion for improved fit (better reproduction of the covariance among variables) to identify parameters that might be added to a model. A large drop in chi-square relative to the loss in degrees of freedom necessary to add parameters may indicate a true improvement in fit. In this particular model, the only parameters that can be added are from any of the eight independent (exogenous) variables to actual effort. Because actual effort was a judgment by other people, one's own assessment of expectancies, instrumentalities, and valence, as well as personal characteristics, should have no direct effect on the value of actual effort. Thus, adding a path or paths to actual effort is not justified from a theoretical perspective.

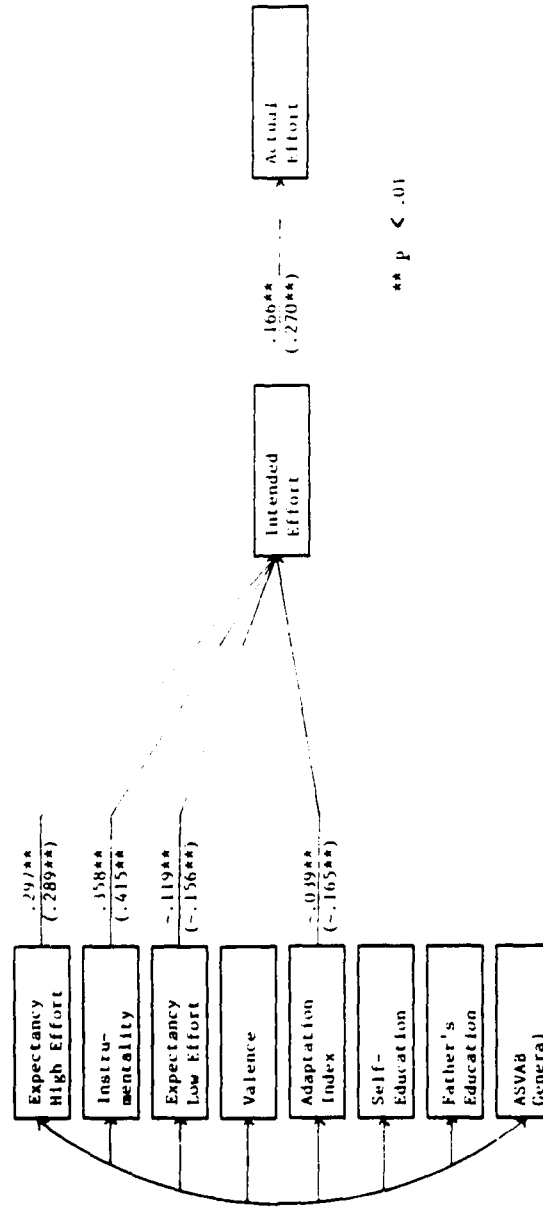


FIGURE 7. Analysis of Revised Path Model of Expectancy Theory



Table 11

Goodness of Fit Indices for Path Analysis of the Revised  
Expectancy Theory Model

Test	Value
Chi-square	57.06 (df = 12)
Goodness of fit	.958
Root mean square	.223
Coefficient of determination	.469

The only other modifications possible for this model are to drop paths that are not statistically significant. Dropping such paths can lead to greater parsimony in the model without sacrificing fit. Just as chi-square can be used to judge addition of paths, it can also be used to judge whether deletion of paths seriously diminishes fit.

Figure 7 and Table 11 show the results of path analysis when all statistically nonsignificant paths are removed. Chi-square increased by only 6.5 for the increase of four degrees of freedom. These revisions did not make any appreciable contribution to fitting the model to the data. No other revisions are possible. Further improvements in fit are only possible through improved measurement of the variables or the addition of new variables. The addition of locus of control as a possible causal variable is a major hypothesis of this study and will be described in a subsequent section. Before that, however, there are several ways to evaluate the reliability of measurement of the variables in the expectancy model. Reliability has a direct effect on the strength of relationships. The policy-capturing procedure used in this study produced more reliable measurement than approaches used in other studies, but less than perfectly reliable measurement probably helps account for the overall modest fit in the path analysis.

Reliability of measurement. Recall that a policy-capturing task was used to derive values for

expectancies for high and low effort, instrumentality, and intended effort. For each person, a separate equation for each variable was calculated by regressing each judgment on the six situational cues in the hypothetical BMT descriptions. The multiple R for each equation indicates the degree to which that person based his judgments on the cues provided. The range of Rs was reported in Table 4. Some subjects were much more consistent in their use of cues than others. Inconsistent policies lead to lower reliability of measurement for some subjects and reduced the strength of relationships among variables across subjects.

Even though some subjects were less consistent in their judgments, the policy-capturing task produced more reliable values for variables than the single-question method used in many other studies. This statement can be supported by looking at other measurement sources available in this study. Recall that at the end of the policy-capturing task subjects were asked to think about BMT as it actually exists and answer the same five questions that they answered throughout the exercise. These responses represent judgments in the actual BMT situation.

Another source of values for the same variables comes from the responses to the questions in the one profile out of the set of 64 that corresponded to each subject's perceived actual BMT situation. At the end of the exercise, each subject indicated how he perceived each of the six cues to

actually exist in BMT (i.e., each subject indicated whether his peers were supportive or not, whether area inspections were difficult or not, etc.). The 64 hypothetical descriptions of BMT represent all combinations of cues. Thus, for each subject it was possible to pick out the one hypothetical description that had the same pattern of cue values said to exist at BMT. The responses to the five questions for that profile represent another source of values for expectancy theory variables.

The three sources of data for the expectancy theory variables will be referred to as (a) policy-capturing task data, (b) direct BMT rating data, and (c) BMT profile data. Table 12 shows the correlations of variables according to source of data. Means and standard deviations are included. These correlations indicate that across subjects the three methods do not necessarily measure the same variable. But this information does not help determine which method is most appropriate or produces the most valid measurements. That assessment can be made by looking at the relationships among variables within the three sources of data. Correlations among variables used in the path analysis with values derived from the policy-capturing task were shown in Table 9. Correlations among these variables using the other two sources of values are shown in Tables 13 and 14. Of particular interest are the relationships among the expectancy theory variables within each of the three sources

Table 12

Correlations of Expectancy Theory Variables According to Source of Data

Variable	<u>Source</u>		
	A and B	A and C	B and C
A = Policy-Capturing Task B = Direct BMT Rating C = BMT Profile Data			
Expectancy High Effort	.33**	.79**	.22**
Expectancy Low Effort	.44**	.83**	.37**
Instrumentality	.44**	.82**	.37**
Intended Effort	.35**	.78**	.32**

Means and Standard Deviations

Variable	<u>Source</u>		
	A	B	C
Expectancy High Effort			
Means	4.17	4.49	4.18
SDs	.68	.60	.86
Expectancy Low Effort			
Means	2.54	1.97	2.57
SDs	.92	.86	1.19
Instrumentality			
Means	3.98	4.11	4.00
SDs	.81	.75	1.09
Intended Effort			
Means	4.17	4.06	4.14
SDs	.70	.64	.94

Note. N = 245.

\*\*p &lt; .01.

Table 13  
Zero-Order Correlations Among Variables in the Path Model with Data Derived from  
Direct BMT Ratings

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Exp High Eff	--									
2. Instrumentality	34**	--								
3. Exp Low Eff	06	01	--							
4. Valence	05	14*	-13*	--						
5. Intended Eff	15*	45**	-02	15*	--					
6. Actual Eff	17**	18**	08	10	24**	--				
7. Adapt Index	-20**	-19**	04	-12	-34**	-33**	--			
8. Self Ed	04	01	01	-06	11	18**	-16**	--		
9. Father's Ed	09	12	01	-03	02	03	00	13	--	
10. ASVAB General	07	19**	-07	-08	05	19**	02	17*	08	---
Mean	4.49	4.11	1.97	21.55	4.06	3.42	5.21	4.67	4.97	64.59
SD	.60	.75	.86	2.64	.64	.43	2.95	1.02	1.87	18.26

Note. Decimal points have been omitted.  $N = 245$ .  
\* $p < .05$ . \*\* $p < .01$ .

Table 14  
Zero-Order Correlations Among Variables in the Path Model with Data Derived from  
BMT Profile Ratings

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Exp High Eff	--									
2. Instrumentality	54**	--								
3. Exp Low Eff	35**	29**	--							
4. Valence	05	00	-07	--						
5. Intended Eff	33**	48**	03	10	--					
6. Actual Eff	25**	19**	23**	10	20**	--				
7. Adapt Index	-20**	-17**	02	-12	-24**	-33**	--			
8. Self Ed	18**	20**	02	-06	11	18**	-16**	--		
9. Father's Ed	23**	17**	19**	-03	07	03	00	13	--	
10. ASVAB General	13	09	-07	-08	08	19**	02	17*	08	--
Mean	4.18	4.00	2.57	21.55	4.14	3.42	5.21	4.67	4.97	64.59
SD	.86	1.09	1.19	2.64	.94	.43	2.95	1.02	1.87	18.26

Note. Decimal points have been omitted.  $N = 245$ .  
\* $p < .05$ . \*\* $p < .01$ .

of values. For example, expectancy for high effort, instrumentality, expectancy for low effort, and valence correlate .57, .61, .02, and .12 respectively with intended effort when values are derived from the policy-capturing task. The same correlations are .15, .45, -.02, and .15 from direct BMT rating data and .33, .48, .03, and .10 from BMT profile data. The same relative magnitudes exist for the majority of correlations among expectancy theory variables: the correlations are greatest when values are derived from the policy-capturing task.

The initial conclusion is that these variables have been measured more reliably in the policy-capturing task than in the single question methods. However, it may be that the policy-capturing task produced considerable method variance that accounts for stronger relationships (e.g., response patterns to all questions across the 64 hypothetical descriptions account for the higher correlations). Inspection of the relationships of expectancy theory variables with other variables not included in the policy-capturing task sheds some light on this issue. For example, the correlation of the expectancy theory variables and actual effort are generally higher when the data are derived from the policy-capturing task than from the other two sources. The same situation occurs for the correlation of the Adaptation Index with expectancy theory variables. Although the degree to which shared method variance may have inflated these



correlations cannot be determined, the policy-capturing approach appears to have produced results at least comparable to those found in other between-subjects studies. The correlations produced from the direct BMT rating data and the BMT profile data probably represent a lower limit to observed relationships.

When the relationships among variables derived from these alternative sources are analyzed in a path model (comparable to that in Figure 6), the coefficients of determination are .282 for data from the direct BMT rating and .281 from the BMT profile. Comparing these to .483 for the model with data from the policy-capturing task again shows that the later method for deriving values produced superior results, at least in terms of systematic shared variance available to be modeled.

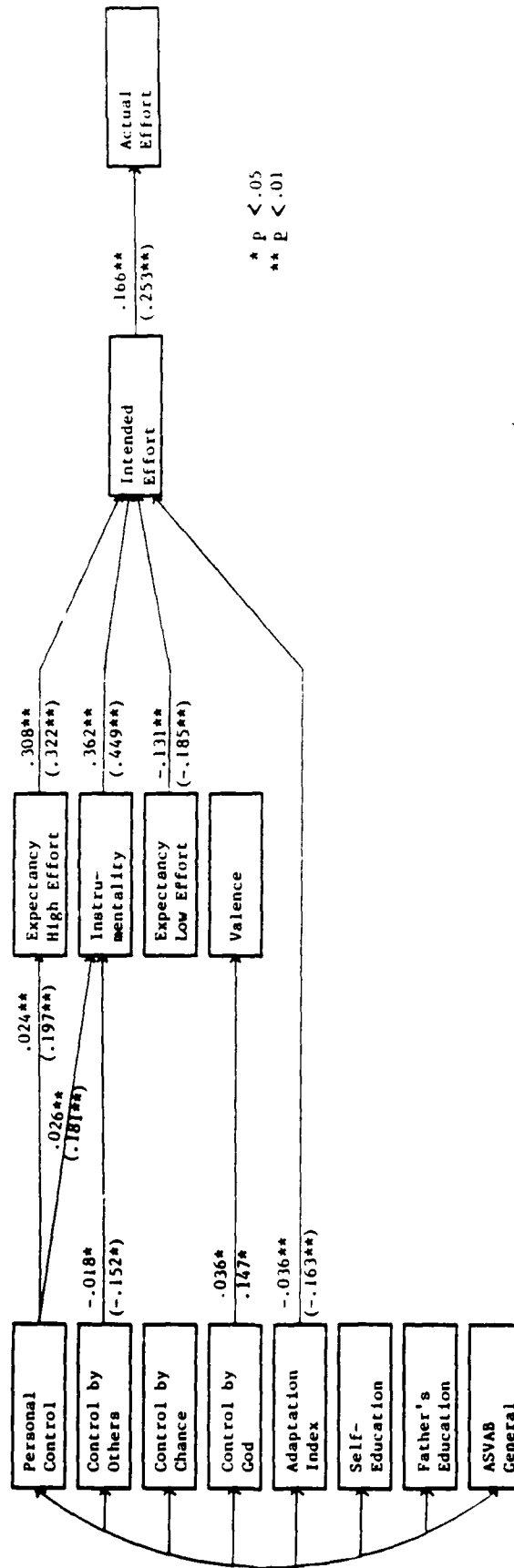
Summary of policy-capturing task analyses. Two types of analyses have been used to evaluate expectancy theory to this point. A within-subjects approach revealed that expectancy theory variables were significantly related to intended effort for the majority of subjects. Further, between-subjects analyses demonstrated that the expectancy theory model as operationalized in this study fit the obtained data. To test the hypothesis that locus of control beliefs affect expectancy theory predictions, it was necessary to first demonstrate that the basic expectancy theory model could predict intended effort. Having

accomplished this objective with data from the policy-capturing task, the analyses next turn to the relationship of locus of control and expectancy theory variables.

Tests of the Relationship of  
Expectancy Theory Variables and  
Locus of Control

Policy-Capturing Task

Locus of control as a causal agent. It was hypothesized that locus of control beliefs may have an impact on the various expectancy theory variables. In a previous section relationships among the expectancy theory variables were evaluated through path analysis. In this section the results of adding locus of control and other personal variables to the basic path model are reported. The model is shown in Figure 8. The zero-order correlation coefficients are shown in Table 15. Rather than display all structural coefficients in Figure 8, only the standardized and unstandardized coefficients that were statistically significant ( $p < .05$ ) are shown. The fit indices are shown in Table 16. The coefficient of determination for this model indicates that 21.5% of the joint variation among the dependent variables is accounted for by the independent variables. Note that this statistic is not comparable to that reported earlier for the path analysis of the basic expectancy theory model. In the earlier model there were only two endogenous or dependent



\* p < .05  
 \*\* p < .01

FIGURE 3. Analysis of Path Model of Expectancy Theory with Locus of Control

Table 15  
Zero-Order Correlations Among Variables in the Path Model with Locus of Control Added

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Exp High Eff	--													
2. Inst	68**	--												
3. Exp Low Eff	27**	24**	--											
4. Valence	05	-01	-03	--										
5. Intended Eff	57**	61**	02	12	--									
6. Actual Eff	30**	25**	21**	10	27**	--								
7. Personal	19**	17**	08	11	06	00	--							
8. Others	-15*	-18**	-04	00	-09	-09	08	--						
9. Chance	-12	-16*	-02	-07	-10	-13*	00	51**	--					
10. God	-08	-06	-04	12	03	01	-14*	10	12	--				
11. Adapt Index	-25**	-22**	01	-12	-33**	-33**	-10	04	25**	03	--			
12. Self Ed	18**	14*	-04	-06	12	18**	08	-01	-02	-08	-16**	--		
13. Father's Ed	24**	12	16*	-03	12	03	00	02	-03	-08	00	13	--	
14. ASVAB General	21**	08	-11	-08	03	19**	11	-07	-07	-13*	02	17*	08	--
Mean	4.15	3.98	2.54	21.55	4.17	3.42	36.74	23.93	22.37	32.15	5.21	4.67	4.97	64.59
SD	.68	.81	.92	2.64	.70	.43	5.64	6.90	7.12	10.84	2.95	1.02	1.87	18.26

Note. Decimal points have been omitted.  $N = 245$ .  
\* $p < .05$ . \*\* $p < .01$ .

Table 16

Goodness of Fit Indices for Path Analysis of the Expectancy  
Theory Model with Locus of Control Added

Test	Value
Chi-square	281.53 (df = 38)
Goodness of fit	.869
Root mean square	.535
Coefficient of determination	.215

variables: predicted intended effort and actual effort. In the current model, each of the expectancy theory variables is shown having potential causal agents. This configuration makes those variables endogenous also and the coefficient of determination applies to the joint variation of six dependent variables rather than just two.

The hypothesized causal relationships among locus of control beliefs and expectancy theory variables can be evaluated with this model. The structural coefficients reveal that beliefs in personal control relate positively to both expectancies for high effort and instrumentality. Belief in control by other people is negatively related to instrumentality. These results are consistent with the hypothesized relationships. The magnitude of these relationships is low. None of the other relationships were statistically significant except for the path from beliefs in control by God to valence. Here, contrary to the hypothesized direction, these control beliefs were positively related to valence. It was predicted that for these people who felt strong control by an external source, such as God, they would possibly value outcomes less (supposedly because outcomes are harder to attain if one has less control). Purely speculating, it may be that people with high beliefs in control by God continue to value outcomes because they believe God will provide them. At any rate, because valence

did not turn out to be a significant contributor to the overall model, further interpretation of causes for valence is irrelevant.

Exploratory modifications. As before, exploratory modifications were evaluated for improved fit of the model to the data and to suggest further research. Using reduction in chi-square as an indicator of improved fit, the addition of a path from expectancy for high effort to instrumentality produced the single greatest drop possible (from chi-square = 281.53, df = 38, to chi-square = 143.27, df = 37) with loss of only one degree of freedom. An additional improvement in fit can be gained by adding a path from expectancy for high effort to expectancy for low effort (chi-square = 126.70, df = 36). These two new paths do not follow any theoretical rationale and are purely exploratory. The fact that addition of these paths helps the model fit the data is not surprising. In the earlier path model of expectancy theory variables (Figure 6), the correlations among both expectancies and instrumentality were not modeled because these variables were treated as exogenous (by definition they were treated as causes rather than effects). Here they are treated as endogenous variables and their intercorrelation can be modeled if justified.

There are two reasons for not pursuing exploratory modifications. First, there is no theoretical basis to believe that one expectancy belief causes another. Second,

the exploratory analysis does not help identify the direction of potential causes. The addition of a path from instrumentality to expectancy for high effort, for example, produces the same improvement to the model as the addition of a path from expectancy for high effort to instrumentality. Therefore, even though chi-square for the model in Figure 8 remains high, the relationships among the expectancy theory variables remain unmodeled. Although speculation about the potential for expectancies to cause instrumentalities, or vice versa, is interesting, such endeavor was not the purpose for this study.

Summary of path analysis. A set of hypotheses were proposed for the potential causal relationship of locus of control beliefs to expectancy theory variables. The basic expectancy theory model was confirmed earlier to fit the data. When locus of control variables were added to the model, personal control was found to relate positively to expectancies for high effort and to instrumentality as expected. Control by others was negatively related to instrumentality also as expected. None of the other hypothesized relationships emerged.

Tests of Locus of Control Beliefs as a Boundary Condition for the Expectancy Theory Model

In addition to investigating the causal influence of locus of control on the expectancy theory variables, it was suggested that expectancy theory may only work (or work best)



for people who hold higher personal control beliefs. To evaluate this hypothesis, results of the within-subjects analysis of the data from the policy-capturing task were inspected according to personal locus of control beliefs.

To review briefly, for each subject, judgments of intended effort (question 3) across the 64 hypothetical descriptions were regressed on his judgments of expectancies for high and low effort (questions 1 and 2), and for the instrumentality of task goal success for obtaining the most desired outcomes (question 5) and the interactions of expectancies and instrumentality. The multiple R for each person indicated how well a simple additive expectancy theory model predicted his intended effort. Table 7 summarized the results of these analyses for all subjects.

If personal locus of control is a relevant boundary condition for expectancy theory, there ought to be a relationship between the multiple R for each person and personal control beliefs. There are several ways to evaluate this relationship. The Pearson correlation between the multiple R and personal control is .02 which shows no relationship. Another way to look at the relationship is to divide the sample according to median multiple R (.702) and compare mean personal control beliefs for each group. The means 36.79 and 36.58 were not significantly different.

Further exploration with the external control beliefs (others, chance, and God) and also Rotter's Internal/External Control detected no significant differences between groups.

When the sample was divided according to whether the multiple R was statistically significant, ( $R > .424$  with  $N = 192$ , and  $R \leq .424$  with  $N = 52$ ) no difference was found for mean personal control beliefs (36.79 and 36.58). However, significant differences were found for beliefs in control by others and beliefs in chance control. These findings are summarized in Table 17. The Pearson correlation for others and chance with the multiple R was  $-.14$  ( $p < .05$ ) and  $-.11$  ( $p < .10$ ), respectively. Interpreting these findings as possible boundary conditions, this model of expectancy theory was more effective for people who have lower belief in control by other people or chance. While it is tempting to use this evidence to say that absence of beliefs in these two forms of external control implies beliefs in personal control, this conclusion is not justified. In this study, personal control beliefs correlated  $.08$  ( $p = .23$ ) with beliefs in control by others, and  $.00$  with beliefs in control by chance, indicating that these external beliefs are not necessarily measuring the opposite of personal beliefs.

The original hypothesis was that the task of judging expectancies, instrumentalities, and valence may only be a relevant task for those who believe they have control over events and outcomes. This idea was not supported with these

Table 17

Comparisons of Mean Control Beliefs When the Sample is Divided by Statistical Significance of the Multiple R

Control Belief	Group Mean <sup>a</sup>	<u>F</u>	<u>df</u>	<u>p</u>
Others	25.66 23.47	4.17	1, 242	< .05
Chance	24.12 21.90	4.06	1, 242	< .05

<sup>a</sup>Higher mean value is from the group where R was not statistically significant

data. The finding that this model of expectancy theory works better for those lower in certain external control beliefs is a bit harder to interpret. The most straightforward speculation is that an expectancy theory model does not work well when people believe events are externally controlled. It may be that individuals with those attitudes are somewhat fatalistic in their judgments: no matter what the circumstances, the outcomes will always be the same. Hence, there is either little variability in judgments of expectancies, instrumentalities, and effort; or there is little shared variability because expectations just do not matter (in a cause and effect manner).

Another evaluation of the relationship of external control beliefs and the effectiveness of the expectancy theory model considers the reliability of the judgments made in the task. Recall that for each person, values for variables were derived from regression of each judgment on the set of six cues across the 64 hypothetical descriptions. Thus, each person had a separate regression equation for each expectancy theory variable. The multiple R for each of these equations indicates the degree to which that person relied on the cues for judgments. The range of these Rs was summarized in Table 4. It follows that if judgments were not strongly tied to the situational cues presented, then some other factor contributed to decisions (something contributed to unreliability in judgments). It also follows that if some

people made unreliable judgments, the ability of the expectancy theory model to predict intended effort would be impaired.

A correlation matrix shows some evidence that people higher in external forms of control beliefs also tended to produce less reliable judgments in the policy-capturing task. For each person there was a multiple R for regression of each expectancy theory variable on the cues in the 64 hypothetical descriptions. These Rs were correlated with locus of control beliefs and the results are shown in Table 18. Notice that belief in control by others correlated significantly with all four multiple Rs and belief in chance control correlated significantly with the multiple Rs for instrumentality and intended effort. Belief in control by God correlated significantly with the R for expectancy for low effort. Because these correlations were negative, the conclusion is that lower beliefs in control by external sources are related to higher reliability of judgments in the cues presented in the policy-capturing task. No statement can be made about personal control beliefs.

In summary, the original hypothesis was not supported that beliefs in personal control contribute to the relevance of judging expectations and instrumentality, and the overall predictive ability of the model. However, people who held lower beliefs in external sources of control were more reliable in their judgments and, hence, the expectancy theory

Table 18

Correlations Among Locus of Control Beliefs and the Multiple Rs  
from the Policy-Capturing Task

Control Belief	Multiple R			
	Expectancy High Effort	Expectancy Low Effort	Instru- mentality	Intended Effort
Personal	02	08	03	04
Others	-22**	-18**	-21**	-22**
Chance	-12	-07	-14*	-15*
God	-09	-14*	-03	-06

Note. Decimal points have been omitted.  $N = 245$ .

\* $p < .05$ . \*\* $p < .01$ .

model worked better for them. Two facts should be kept in mind: (a) there is no evidence to state that lower external beliefs cause higher reliability and usefulness of the model; and (b) the relationships discussed here, although statistically significant, are relatively weak.

#### Discussion

The purpose of this study was twofold: first, to operationalize and test an expectancy theory model, and second, to investigate the relationship of locus of control beliefs, both with the individual variables in the model and on the ability of the model to predict intended effort. The first purpose was accomplished by drawing on the results of expectancy theory studies to choose procedures consistent with theory and supported by research findings. A within-subjects approach was used to derive values for the expectancy theory variables and evaluate predictability for each person. The results of this step were used in path analysis across all subjects to evaluate causal relationships among variables. Both analysis approaches showed that the model can predict intended effort to a degree. The within-subjects analyses demonstrated that an additive model of expectancy for high effort, expectancy for low effort, instrumentality, and interactions of expectancies by instrumentality could account for a statistically significant amount of variance for the majority of subjects (193 of 245). The amount of variance accounted for differed widely among

subjects. In the path analysis, expectancy for high effort and instrumentality were positively related to intended effort as potential antecedents in a causal chain. Expectancy for low effort was negatively related to intended effort as predicted. Valence was not related to intended effort. Intended effort was a significant antecedent to actual effort. Although there were statistically significant relationships among these variables, the path coefficients were not large, and the model as a whole only accounted for small amounts of joint variance with two dependent variables (intended and actual effort).

A major hypothesis of this study was that high personal locus of control beliefs would have a positive effect on expectancies and instrumentalities. Also, beliefs in external sources of control were hypothesized to be negatively related to expectancy theory variables. Although the path coefficients were small, personal control was positively related to expectancy for high effort and instrumentality. Belief in control by others was negatively related to instrumentality. No other relationships with external control beliefs were significant. An additional hypothesis was that an expectancy theory model may only work (or work best) for people who hold personal control beliefs. This hypothesis was not confirmed, but the data did suggest that lower beliefs in control by external sources (which are not necessarily the same as high personal control beliefs)



were related to more reliable judgments in the policy-capturing task. More reliable judgments lead to greater ability of the expectancy theory model to predict intended effort.

Campbell and Pritchard (1976) concluded from a large number of studies that expectancy theory provides a useful conceptual model for understanding motivation, but the model has a generally low ceiling in its ability to predict effort. The current study attempted to raise that ceiling by operationalizing the model in the most theoretically appropriate manner. Nevertheless, no stronger statistical relationships emerged than in the majority of other studies. Locus of control beliefs were included to help explain some of the variance in effort decisions. Predicted relationships were confirmed but these relationships were relatively weak and did not enhance the ability of expectancy theory to predict effort. There are at least three possible reasons for these limited findings. First, this research may not have been very successful in operationalizing an appropriate model. There were a number of decisions made in the way variables were measured (such as limiting expectancies to task goal success only) that may have constrained relationships. Also, performance on the policy-capturing task varied widely with some subjects basing their judgments

on the cues provided and some responding to other stimuli (or randomly). There were no explanations from the available data for the variability in policy-capturing outcomes.

The second possible reason for the limited findings of this study may be in the expectancy theory model used. As noted in the introductory comments, there is no single model of expectancy theory. Researchers have debated extensively on operational definitions, combination rules, influences of additional variables, and so on. The model developed for this study was supported by research findings but may have not been precise enough to produce higher levels of predictability. That some people apparently based their judgments in the policy-capturing task on factors outside the task suggests additional variables may be necessary to account for variance in effort. This study included a number of personal characteristics to help account for variance, but none were strongly related to expectancy theory variables. Other variables may exist that could help explain relationships.

A further reason for modest predictability of the expectancy theory model may be that the theory demands more rational, purposive behavior than people typically exhibit. The theory assumes people evaluate alternatives and select the one with the greatest subjective payoff. Maybe people do not make precise evaluations and decisions regarding valences, expectancies, or instrumentalities; instead,

perhaps they simply accept the first alternative that exceeds some minimum acceptable level. Or it may be that people respond to demands of the environment more than to the levels of their own desired outcomes (i.e., behavior may be more reactive than purposive). In general, the modest results of this study probably accrue from a combination of imprecise measurement, incomplete model specification, and inaccurate theoretical assumptions.

That relationships among locus of control beliefs and expectancy theory variables were modest is not necessarily unexpected. This research was the first attempt to integrate constructs of two theories in causal relationships. Although findings from other studies noted bivariate relationships between locus of control and expectancy theory variables, there was not a strong theoretical foundation for integrating these theories in a formal structure. Thus, a tentative model was developed to test hypotheses, but strong assertions were not justified or made about the structural model being a complete, closed model. Nevertheless, the findings from this study, modest as they may be, support the existing knowledge about expectancy theory. A person's beliefs about contingencies among effort, task performance, and outcomes contribute to their decisions to put forth effort. Additional considerations from both the environment (availability of goals, assistance from others, etc.) and the person (control orientation, perceived value of outcomes,

etc.) also shape effort decisions. This study, like others before, has captured some of the variance in effort decisions by measuring expectancy theory constructs and other potential contributors. But finding that a number of variables relate modestly to effort decisions only accentuates the complexity of a model of motivation. With concessions made in measuring variables, this study and similar ones have developed models with loosely connected parts. Further elucidation of expectancy-type models requires greater complexity (more variables), better measurement, and consideration of the possibility that people do not seek maximum payoffs. More studies at the macro level (whole models) will probably continue to contribute low level support. Work focused on the individual constructs and their relationships with other variables will set the stage for studies of whole models.

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**APPENDIX A**

This survey has been prepared to gather data for a study about people's attitudes and motivation at work and in training. You will be asked questions about your attitudes toward a number of situations, including Basic Military Training. This is not a test. All questions have to do with your own personal attitudes.

Your participation in this project is voluntary. You do not have to answer any questions if you do not want to. You may also stop at any time if you do not want to continue. If you do stop, you may sit quietly and rest or study.

Your name will never be used with your answers to this questionnaire. All responses are anonymous. An identification number is used to keep your materials together, but this number has no meaning and cannot be traced to your name once this session is over.

The session will last about 2 hours. There are three separate parts and we will take a short break between each. I will give instructions for each section as we come to them. You are free to ask questions at any time.

If you are interested in the results of this survey, you may write to:

HQ AFMPC/DPMYOT  
Attn: Paul J. Cook  
Randolph AFB, TX 78150-6001

## APPENDIX B

Appendix B  
Means and Standard Deviations of Expectancy Theory Variables and Personal Characteristics by Flight

Variable	Flight						All Flights Combined	Maximum Difference
	1	2	3	4	5	6		
Expectancy <sup>a</sup> High Effort								
Mean	4.19	4.18	4.12	4.30	4.17	4.05	4.17	.25 ns
SD	.73	.65	.74	.57	.79	.64	.68	
N	39	42	46	42	32	41	242	
Expectancy <sup>a</sup> Low Effort								
Mean	2.23	2.42	2.50	2.95	2.44	2.67	2.54	.72 p<.05
SD	.85	1.06	.82	.93	.85	.89	.92	
N	39	42	46	42	32	41	242	
Instrum- mentality <sup>a</sup>								
Mean	3.97	3.76	4.01	4.05	3.97	4.11	3.98	.35 ns
SD	.87	.75	.89	.79	.94	.63	.81	
N	39	42	46	42	32	41	242	

## Appendix B Continued

Valence	Mean	21.70	21.93	21.78	21.90	21.09	20.76	21.55	1.17 ns
	SD	2.37	2.05	2.25	2.35	3.18	3.48	2.64	
	N	40	43	46	42	32	42	245	
Intended Effort	Mean	4.39	3.97	4.24	4.10	4.08	4.21	4.17	.42 ns
	SD	.64	.67	.73	.70	.79	.67	.70	
	N	39	42	46	42	32	41	242	
Actual Effort	Mean	3.54	3.30	3.31	3.75	3.33	3.28	3.42	.47 $p < .001$
	SD	.39	.40	.37	.36	.43	.44	.43	
	N	40	43	46	42	32	42	245	
Personal Control	Mean	36.06	35.95	37.18	37.00	37.41	36.98	36.74	1.46 ns
	SD	6.58	5.82	4.36	5.90	6.13	5.28	5.64	
	N	40	43	46	41	32	42	244	
Control by Others	Mean	25.04	24.41	22.38	23.79	22.59	25.26	23.93	2.88 ns
	SD	6.83	6.81	7.67	6.45	6.69	6.63	6.90	
	N	40	43	46	41	32	42	244	
Control by Chance	Mean	21.06	23.51	21.67	23.40	20.89	23.33	22.37	2.62 ns
	SD	5.86	7.59	6.84	8.30	7.64	6.19	7.12	
	N	40	43	46	41	32	42	244	

## Appendix B Continued

Control by God	Mean	31.03	32.75	33.89	31.14	29.46	33.74	32.15	4.43 ns
	SD	12.19	10.16	11.07	10.28	12.49	8.92	10.84	
	N	40	43	46	41	32	42	244	
Adaptaion Index	Mean	4.04	6.02	5.62	5.51	4.94	4.93	5.21	1.98 p<.05
	SD	2.25	3.07	3.30	2.85	2.97	2.83	2.95	
	N	40	43	46	42	32	42	245	
Self Education	Mean	4.45	4.68	4.58	4.75	4.76	4.82	4.67	.37 ns
	SD	.80	.94	.92	1.30	1.06	1.07	1.02	
	N	38	40	45	40	29	39	231	
Father's Education	Mean	4.67	4.92	4.81	5.40	4.42	5.38	4.97	.98 ns
	SD	1.87	2.06	1.80	1.98	1.84	1.53	1.87	
	N	36	36	43	40	24	37	216	
ASVAB General	Mean	63.92	66.07	67.71	62.69	66.17	60.13	64.59	7.58 ns
	SD	20.66	18.90	18.55	16.54	16.60	17.34	18.26	
	N	37	41	45	29	30	38	220	
Age	Mean	19.29	20.00	19.78	20.00	20.31	20.33	19.94	1.04 ns
	SD	1.63	2.00	1.96	2.45	2.25	2.33	2.12	
	N	38	40	45	40	29	42	234	

<sup>a</sup>Calculated from regression of this variable on the six cues in the BMT hypothetical descriptions.

**APPENDIX C**



Appendix C

Zero-Order Correlations Among Expectancy Theory Variables and Personal Characteristics

Expectancy Theory Variables						
Personal Characteristics	Expectancy High Effort	Expectancy Low Effort	Instru-mentality	Valence	Intended Effort	Actual Effort
ASVAB General <sup>a</sup>	21**	-11	08	-08	03	19**
ASVAB Electronic	23**	-09	11	-11	05	18**
ASVAB Mechanical	25**	01	16*	-03	07	14*
ASVAB Admin	15*	06	12	07	06	23**
Prediction of Emotion Instability	-25**	-06	-21**	-11	-25**	-29**
Prediction of Drug Abuse	-21**	05	-19**	-11	-32**	-31**
Adapt Index	-25**	01	-22**	-12	-33**	-33**
Age	15*	12	06	-02	01	27**
Self Ed <sup>a</sup>	18**	-04	14*	-06	12	18**
Mother's Ed <sup>a</sup>	08	01	01	-08	02	-07
Father's Ed <sup>a</sup>	24**	16**	12	-03	12	03
Part Time Jobs	04	02	06	03	-05	-03
Full Time Jobs <sup>b</sup>	-02	09	06	-05	-05	14*
BMT Attitude 1	-17**	05	00	03	-05	-16*
BMT Attitude 2	-15*	-01	-08	-12	-17**	-13*
BMT Attitude 3	08	-01	16*	06	10	10
BMT Attitude 4	00	04	-03	03	01	09
BMT Attitude 5	-03	-08	-03	-14*	-05	-10
BMT Attitude 6	-03	-11	-07	-10	-10	-06
BMT Attitude 7	-07	-07	00	00	-05	-17**

## Appendix C Continued

## Expectancy Theory Variables

Personal Characteristics	Expectancy High Effort	Expectancy Low Effort	Instru-mentality	Valence	Intended Effort	Actual Effort
Work Attitude 1 <sup>c</sup>	20**	05	18**	04	12	23**
Work Attitude 2	-08	-12	-08	03	-01	-22**
Work Attitude 3	05	07	-04	25**	12	11
Work Attitude 4	-17**	-03	-11	09	-15*	-03
Work Attitude 5	-08	03	-07	-02	-05	05
Work Attitude 6	-17**	-01	-11	06	-20**	-19**
Work Attitude 7	16**	00	16*	15*	21**	16*
Work Attitude 8	11	02	10	14*	09	15*
Work Attitude 9	17**	06	09	17**	20**	14*
Work Attitude 10	-02	-15*	-03	08	-04	00
Work Attitude 11	-26**	03	-20**	-06	-22**	-15**
Work Attitude 12	13*	-03	08	09	11	24**
Work Attitude 13	11	08	-03	05	05	20**

Note. Decimal points have been omitted.  $N = 245$ .

<sup>a</sup> Selected for path analysis. <sup>b</sup> BMT Attitudes 1 through 7 are from questions 47 through 53 shown on page 30 of Part III in Appendix A. <sup>c</sup> Work Attitudes 1 through 13 are from the questions on page 31 of Part III in Appendix A.

\* $p < .05$ . \*\* $p < .01$ .

**APPENDIX D**

## LISREL VI

LISREL VI is a program that provides simultaneous solutions for linear equations. There are many applications of this program in causal modeling, confirmatory factor analysis, multiple regression, etc. In the current study, LISREL VI is used to calculate various parameters in path analysis. This appendix discusses assumptions and constraints of the LISREL VI analyses as well as the various output statistics.

The discussion begins with the initial set up, or identification, of the models to be analyzed. The basic idea behind path modeling is to estimate a set of structural parameters in the population based on sample data. The sample variance-covariance matrix ( $S$ ) among variables is used to produce an estimated population variance-covariance matrix ( $\Sigma$ ) given a specified set of structural parameters. It may be that several sets of structural parameters generate the same  $\Sigma$ . If the value of a parameter remains the same across all structures that generate a similar  $\Sigma$ , the parameter is identified (Jöreskog & Sörbom, 1984). When all parameters are identified, so is the model. Identification can become a problem especially where there are latent variables in the model. In that case a model cannot be evaluated at the level of the observed variables and it may be difficult to find a unique set of parameters that produce  $\Sigma$ . In the present study there are no latent variables. Identification in the case of a fully recursive path model (i.e., the hypothesized causal flow is in one direction only) with

observed variables then centers on whether or not the measurement and distribution of variables satisfies the requirements for the chosen method of estimation. LISREL VI has several methods of parameter estimation each of which employs a fitting function that seeks to minimize the difference between  $S$  and  $\Sigma$ . The most desirable method for this study is based on maximum likelihood estimates of parameters. This is a full information technique that estimates all equations and parameters simultaneously (Long, 1983) and produces certain desirable statistics for assessing fit (Jöreskog & Sörbom, 1984). To use this method, however, the model must be identified and variables must exhibit multivariate normal distributions.

Although univariate normal distributions of individual variables do not guarantee multivariate normal distribution, inspection of univariate distributions can be informative. In general, none of the variables included in the path models of expectancy theory in this study showed excessive deviations from normal. Some variables were skewed more than others (e.g., valence ratings), but none so seriously as to suggest inappropriateness of the maximum likelihood procedure for estimation.

Another requirement for use of the maximum likelihood method is that the sample covariance matrix ( $S$ ) be positive definite. LISREL VI reports the determinant of  $S$  and in all cases  $S$  was positive definite in this study. Had  $S$  not been positive

definite there would have been concern that some variables were linear functions of others, thus creating an identification problem.

The maximum likelihood method of estimation minimizes the difference between  $S$  and  $\Sigma$  by successively improving parameter estimates until no further improvement occurs (Jöreskog & Sörbom, 1984). This procedure generates standard errors for parameter estimates that are useful in evaluating relationships among variables using  $t$  tests.

Additionally, this procedure generates statistics useful in evaluating the fit of the entire model to the data. An index of measurement, the coefficient of determination produced by LISREL VI indicates the degree to which the exogenous variables as a set account for variability in the exogenous variables as a set (Specht, 1983). As with the coefficient of determination in regression analysis, the values range from zero to one with larger values associated with greater accountability for variance.

A chi-square value is derived from the fitting function and can be used to assess the fit of the model to the data. A large chi-square relative to its degrees of freedom (which are based on the number of variables present and parameters estimated) suggests that the constraints imposed in the model do not accurately reproduce the unconstrained variances and covariances among variables. When the fit is poor, there are various indicators that can suggest ways to improve a model by adding parameters. In such a case, a large drop in chi-square relative

to a small drop in degrees of freedom would indicate a better model. Of course any such modifications must be justifiable based on theoretical considerations.

Although chi-square is useful in assessing fit, there are several cautions to be kept in mind (Jöreskog & Sörbom, 1984). The chi-square is a function of sample size. As sample size increases, so may the statistic to the point where it may appear that the reproduced variances and covariances depart greatly from the input values when in fact the fit may be otherwise relatively good. Another consideration is that the chi-square statistic is sensitive to departures from multivariate normality with its value increasing with departures from normality. For these reasons, acceptance or rejection of a model should not be made solely on chi-square evidence.

A root mean square residual (RMSR) provides a measure of how far  $S$  and  $\Sigma$  depart. A single statistic reports the mean residuals for all variables. Inspection of individual residuals may be useful in isolating poor measurement or specification of relationships.

Jöreskog and Sörbom (1984) also report a goodness of fit index (GFI) that is independent of sample size. It measures the joint variability accounted for by the model as a whole. However, its usefulness is limited because its distribution is not yet known and there is no way to readily interpret its value against some standard. It may be most valuable in comparing competing models, assuming a higher value is always better.

Booklet\_\_\_\_\_

BASIC MILITARY TRAINING

ATTITUDE SURVEY

PART I



USAF SCN 86-126



# BMT Outcomes

Instructions: BMT outcomes are things that different people have said they want to get out of BMT. First, read through the list of outcomes. Then follow the rest of the instructions below.

Rank Order	Title	Description	Rating
	A. Self-discipline	Learn how to discipline your time, money, effort, etc.	
	B. Honor graduate	Be an honor graduate as a matter of personal pride and accomplishment	
	C. Honor flight	Be a member of an honor flight as a matter of personal pride and accomplishment	
	D. Prove yourself	Prove to your parents, friends, or wife that you can do it	
	E. Avoid recycling	Graduate with your flight	
	F. Beat sister flight	Do better than your sister flight	
	G. Make your MTI look good	Perform well so your MTI looks good to his supervisor	
	H. Earn honor graduate ribbon	Earn the ribbon as a visible sign of success	
	I. Respect	Earn the respect of your fellow flight members	
	J. Learn about the USAF	Find out more about the USAF while at BMT	
	K. Patriotic duty	Get through BMT because it is your patriotic duty	

Rank Order	Title	Description	Rating
	L. Have a job	Get through BMT because you want a job in the USAF	
	M. Get away from home	Get away and be on your own	
	N. Do well for someone	Do well at BMT because it will make someone proud of you	
	O.		
	P.		
	Q.		
	R.		

Instructions: Follow these steps in order:

- Step 1 You may add any other BMT outcomes that you want. Just write in a title and short description. But remember, these are only BMT outcomes, not long range career plans.
- Step 2 Pick the five outcomes from the list that are most attractive to you. Circle the letter in front of the title for these five. Count to make sure you circled five.
- Step 3 In the column marked Rank Order you will put a number next to your five most attractive outcomes to show which outcome is first, second, third, fourth, and fifth most attractive.
- Step 4 In the column marked Rating you are going to rate how attractive each of your five most attractive outcomes are to you. Use the scale below and put in the letter of the rating that best describes each of your most attractive outcomes.
- A. Extremely attractive
  - B. Very attractive
  - C. Somewhat attractive
  - D. A little attractive
  - E. Not very attractive
- Step 5 Write in the title of your five most attractive outcomes on the blue piece of paper.

## Questions

Instructions: In this part of the questionnaire you will be asked several questions about how much effort you put into some the main areas of BMT. In each question there are several examples of what effort means. Please think very carefully about these questions and circle one answer to the right of each question.

### Academics

1. If you put a lot of effort (study extra on your own, help other members of your flight or ask for help if you need it, do study review exercises early, pay attention in lectures), how likely do you feel that you will get a passing grade (70 or above) in academics?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

2. If you put out very little effort (no study, do not help others or ask for help, do not do review exercises or wait until the last minute, day-dream in lectures), how likely do you feel the you will get a passing grade in academics?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

3. How much effort (time spent studying, helping others or asking for help, working on review exercises, paying attention in lectures) do you put out in academics?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you will do in academics?

1. Very poor (grade below 59)
2. Poor (60-69)
3. Pass (70-79)
4. Above average (80-92)
5. Excellant (93-100)

5. Think about the five BMT outcomes that you rated as most attractive to you (see the blue piece of paper). Given the grade you think you will get (in question 4), rate how likely this grade will be to help you get each of the BMT outcomes you want.

First most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Second most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Third most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Fourth most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Fifth most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

#### Dormitory Inspections

1. If you put out a lot of effort (spend a lot of time reading requirements, help others or ask for help, pay attention to details), how likely do you feel that you will get a satisfactory on your second dormitory inspection?

1. Not likely
2. A slight chance
3. A medium chance
4. A good chance
5. Very likely

2. If you put out very little effort (little time spent reading requirements, do not help others or ask for help, do not pay attention to details), how likely do you feel that you will get a satisfactory on your second dormitory inspection?

1. Not likely
2. A slight chance
3. A medium chance
4. A good chance
5. Very likely

3. How much effort (time spent reading requirements, helping others or asking for help, paying attention to details) do you put out in getting ready for your second dormitory inspection?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you will do in your second dormitory inspection?

1. Very poor
2. Poor
3. Satisfactory
4. Above average
5. Excellent

5. Think about the five BMT outcomes that you rated as most attractive to you (see the blue piece of paper). Given the inspection results you think you will get (in question 4), rate how likely these results will help you get each of the BMT outcomes you want.

First most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Second most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Third most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Fourth most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Fifth most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

#### Attitude and Adaptability

1. If you put out a lot of effort (accept responsibility, spend time on your uniform, study rules of courtesy and conduct, help others or ask for help, cooperate with your MTI), how likely do you feel that you will receive satisfactory ratings in attitude and adaptability?

1. Not likely
2. A slight chance
3. A medium chance
4. A good chance
5. Very likely

2. If you put out very little effort (do not accept responsibility, spend little time on your uniform, little study of rules of courtesy and conduct, do not cooperate with your MTI), how likely do you feel that you will receive satisfactory ratings in attitude and adaptability?

1. Not likely
2. A slight chance
3. A medium chance
4. A good chance
5. Very likely

3. How much effort (accepting responsibility, spending time on your uniform, studying rules of courtesy and conduct, helping others or asking for help, cooperating with your MTI) do you put into the attitude and adaptability requirements?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you will do on the rest of the attitude and adaptability ratings?

1. Very poor
2. Poor
3. Satisfactory
4. Above average
5. Excellant

5. Think about the five BMT outcomes that you rated as most attractive to you (see the blue piece of paper). Given the attitude and adaptability ratings that you think you will get (in question 4), rate how likely these attitude and adaptability ratings will help you get each of the BMT outcomes you want.

First most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Second most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Third most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Fourth most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

Fifth most attractive outcome

1. Not likely to get it
2. A slight chance to get it
3. A medium chance to get it
4. A good chance to get it
5. Very likely to get it

### Peer Rating

Instructions: Below is a list of numbers that correspond to the names of the members of your flight. The names are shown on the board at the front of the room. To the right of each person number is a block for an area of BMT. You are to rate the amount of effort each member of your flight puts into each of these areas. When you make your ratings, think about the examples of effort given for each area.

Rate as many people as you can. If you really do not know someone you may skip that person. But try to rate as many as you can. Do not rate yourself. Use the scale below and put one number in each of the three blocks by each person's number. Remember, the ratings you make are anonymous - no one will ever know the rating you gave to them.

- 1 = Very little effort
- 2 = Some effort
- 3 = Moderate effort
- 4 = Much effort
- 5 = Maximum effort

<u>Person Number</u>	<u>Academics</u>  Examples: Time spent studying, helping others, attention in class	<u>Area Inspections</u>  Examples: Time spent preparing, attention to instructions, helping others	<u>Attitude and Adaptability</u>  Examples: Accepting responsibility, coop- erating with MTI, following instructions
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Person  
Number

Academics

Area Inspections

Attitude and  
Adaptability

Examples: Time  
spent studying,  
helping others,  
attention in  
class

Examples: Time  
spent preparing,  
attention to  
instructions,  
helping others

Examples: Accepting  
responsibility, coop-  
erating with MTI,  
following instructions

11			
12			
13			
14			
15			
16			
17			
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27			
28			
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30			
31			
32			
33			
34			



Person  
Number

Academics

Area Inspections

Attitude and  
Adaptability

Examples: Time  
spent studying,  
helping others,  
attention in  
class

Examples: Time  
spent preparing,  
attention to  
instructions,  
helping others

Examples: Accepting  
responsibility, coop-  
erating with MTI,  
following instructions

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## Questions

Instructions: Presented below are some statements about your personal beliefs. Please read each statement carefully and draw a circle around one of the six numbers to the right of each statement to show how much you agree or disagree with it. There are no right or wrong answers. Answer each as you personally feel. Please do not leave any blank.

- 1 = Strongly disagree
- 2 = Disagree somewhat
- 3 = Slightly disagree
- 4 = Slightly agree
- 5 = Agree somewhat
- 6 = Strongly agree

Whether or not I get to be a leader depends mostly on my ability.	1 2 3 4 5 6
I feel like what happens in my life is mostly determined by powerful people.	1 2 3 4 5 6
It's chiefly a matter of fate whether or not I have a few friends or many friends.	1 2 3 4 5 6
I will become a leader if God chooses me and gives me the gift of leadership.	1 2 3 4 5 6
When I get what I want, it's usually because I'm lucky.	1 2 3 4 5 6
Whether or not I get into a car accident depends mostly on how good a driver I am.	1 2 3 4 5 6
My life is controlled by God's purpose.	1 2 3 4 5 6
Whether or not I get into a car accident depends mostly on God's care for me.	1 2 3 4 5 6
Often there is not chance of protecting my personal interests from bad luck happenings.	1 2 3 4 5 6
I have often found that what will happen in my life is controlled by God's will.	1 2 3 4 5 6
It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad luck.	1 2 3 4 5 6
I can pretty much determine what will happen in my life.	1 2 3 4 5 6
When I get what I want, it's usually because I worked hard for it.	1 2 3 4 5 6
The best way to protect my personal interests is by trusting the Lord.	1 2 3 4 5 6
How many friends I have depends on how nice a person I am.	1 2 3 4 5 6

GO ON TO THE NEXT PAGE

- 1 = Strongly disagree
- 2 = Disagree somewhat
- 3 = Slightly disagree
- 4 = Slightly agree
- 5 = Agree somewhat
- 6 = Strongly agree

Whether or not I get into a car accident is mostly a matter of luck.	1 2 3 4 5 6
If important people were to decide they didn't like me, I probably wouldn't make many friends.	1 2 3 4 5 6
My life is chiefly controlled by other people.	1 2 3 4 5 6
When I make plans, I am almost always certain to make them work.	1 2 3 4 5 6
Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.	1 2 3 4 5 6
Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.	1 2 3 4 5 6
When I get what I want, it's because God answers my prayers.	1 2 3 4 5 6
People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.	1 2 3 4 5 6
My life is determined by my own actions.	1 2 3 4 5 6
I have often found that what is going to happen will happen.	1 2 3 4 5 6
In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	1 2 3 4 5 6
Whether or not I get into a car accident depends mostly on the other driver.	1 2 3 4 5 6
I am usually able to protect my personal interests.	1 2 3 4 5 6
If the plans I make work out, it is because they fit into God's plan.	1 2 3 4 5 6
Getting what I want requires pleasing those people above me.	1 2 3 4 5 6
How many friends I have depends on God's plan for my life.	1 2 3 4 5 6
To a great extent my life is controlled by accidental happenings.	1 2 3 4 5 6

Booklet\_\_\_\_\_

BASIC MILITARY TRAINING

ATTITUDE SURVEY

PART II



USAF SCN 86-126

### EXAMPLE

Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTI is not very helpful, understanding, and supportive. The other members of your flight give you very little help and encouragement. Your parents, friends, or wife are not very supportive. The requirements for your dormitory inspections are difficult and hard to do. Academics are difficult and require lots of study time. It is very hard to get satisfactory weekly ratings in attitude and adaptability.

64

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?

1. Poorly
2. Below average
3. Average
4. Above average
5. Exceed requirements (Honor Graduate)

5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?

1. Not likely to get them
2. A slight chance to get them
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### EXAMPLE

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1

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

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| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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22

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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37

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7

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49

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45

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32

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56

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?

1. Poorly
2. Below average
3. Average
4. Above average
5. Exceed requirements (Honor Graduate)

5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?

1. Not likely to get them
2. A slight chance to get them
3. A medium chance (50-50) to get them
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Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTI is not very helpful, understanding, and supportive. The other members of your flight give you very little help and encouragement. Your parents, friends, or wife are very supportive. The requirements for your dormitory inspections are simple and easy to do. Academics are simple and require very little study time. It is very easy to get satisfactory weekly ratings in attitude and adaptability.

33

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

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15

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54

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42

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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| 5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?   | 1. Not likely to get them<br>2. A slight chance to get them<br>3. A medium chance (50-50) to get them<br>4. A good chance to get them<br>5. Very likely to get them |

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5

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- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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51

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

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23

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- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
| 2. If you give very little effort to studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?                                 | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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46

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48

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36

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- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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57

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- |   |   |
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| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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29

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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37

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
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5. Very likely to pass

3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?

1. Poorly
2. Below average
3. Average
4. Above average
5. Exceed requirements (Honor Graduate)

5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?

1. Not likely to get them
2. A slight chance to get them
3. A medium chance (50-50) to get them
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Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTI is not very helpful, understanding, and supportive. The other members of your flight give you lots of help and encouragement. Your parents, friends, or wife are not very supportive. The requirements for your dormitory inspections are simple and easy to do. Academics are simple and require very little study time. It is very easy to get satisfactory weekly ratings in attitude and adaptability.

41

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

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21

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26

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| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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47

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| 4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?   | 1. Poorly<br>2. Below average<br>3. Average<br>4. Above average<br>5. Exceed requirements (Honor Graduate)  |
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24

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| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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52

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2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?

1. Poorly
2. Below average
3. Average
4. Above average
5. Exceed requirements (Honor Graduate)

5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?

1. Not likely to get them
2. A slight chance to get them
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Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTI is not very helpful, understanding, and supportive. The other members of your flight give you lots of help and encouragement. Your parents, friends, or wife are not very supportive. The requirements for your dormitory inspections are simple and easy to do. Academics are difficult and require lots of study time. It is very easy to get satisfactory weekly ratings in attitude and adaptability.

43

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

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6

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Booklet\_\_\_\_\_

BASIC MILITARY TRAINING

ATTITUDE SURVEY

PART III



USAF SCN 86-126

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| 4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?   | 1. Poorly<br>2. Below average<br>3. Average<br>4. Above average<br>5. Exceed requirements (Honor Graduate)  |
| 5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?   | 1. Not likely to get them<br>2. A slight chance to get them<br>3. A medium chance (50-50) to get them<br>4. A good chance to get them<br>5. Very likely to get them |



Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTI is not very helpful, understanding, and supportive. The other members of your flight give you very little help and encouragement. Your parents, friends, or wife are not very supportive. The requirements for your dormitory inspections are simple and easy to do. Academics are difficult and require lots of study time. It is very hard to get satisfactory weekly ratings in attitude and adaptability.

63

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
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2. Some effort
3. Moderate effort
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5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?

1. Poorly
2. Below average
3. Average
4. Above average
5. Exceed requirements (Honor Graduate)

5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?

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62

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

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2. Below average
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8

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

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18

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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| 4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?   | 1. Poorly<br>2. Below average<br>3. Average<br>4. Above average<br>5. Exceed requirements (Honor Graduate)  |
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14

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

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1. Poorly
2. Below average
3. Average
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9

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

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64

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

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31

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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| 4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?   | 1. Poorly<br>2. Below average<br>3. Average<br>4. Above average<br>5. Exceed requirements (Honor Graduate)  |
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3

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30

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25

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
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2

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

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50

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
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| 2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?                                | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
| 3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?   | 1. Very little effort<br>2. Some effort<br>3. Moderate effort<br>4. Much effort<br>5. Maximum effort  |
| 4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?   | 1. Poorly<br>2. Below average<br>3. Average<br>4. Above average<br>5. Exceed requirements (Honor Graduate)  |
| 5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?   | 1. Not likely to get them<br>2. A slight chance to get them<br>3. A medium chance (50-50) to get them<br>4. A good chance to get them<br>5. Very likely to get them |

Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTI is very helpful, understanding, and supportive. The other members of your flight give you lots of help and encouragement. Your parents, friends, or wife are very supportive. The requirements for your dormitory inspections are difficult and hard to do. Academics are simple and require very little study time. It is very easy to get satisfactory weekly ratings in attitude and adaptability.

4

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
| 2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?                                | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
| 3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?   | 1. Very little effort<br>2. Some effort<br>3. Moderate effort<br>4. Much effort<br>5. Maximum effort  |
| 4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?   | 1. Poorly<br>2. Below average<br>3. Average<br>4. Above average<br>5. Exceed requirements (Honor Graduate)  |
| 5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?   | 1. Not likely to get them<br>2. A slight chance to get them<br>3. A medium chance (50-50) to get them<br>4. A good chance to get them<br>5. Very likely to get them |

Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTI is very helpful, understanding, and supportive. The other members of your flight give you very little help and encouragement. Your parents, friends, or wife are very supportive. The requirements for your dormitory inspections are difficult and hard to do. Academics are simple and require very little study time. It is very easy to get satisfactory weekly ratings in attitude and adaptability.

20

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?

1. Poorly
2. Below average
3. Average
4. Above average
5. Exceed requirements (Honor Graduate)

5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?

1. Not likely to get them
2. A slight chance to get them
3. A medium chance (50-50) to get them
4. A good chance to get them
5. Very likely to get them

Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTI is very helpful, understanding, and supportive. The other members of your flight give you lots of help and encouragement. Your parents, friends, or wife are very supportive. The requirements for your dormitory inspections are simple and easy to do. Academics are simple and require very little study time. It is very easy to get satisfactory weekly ratings in attitude and adaptability.

1

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?

1. Poorly
2. Below average
3. Average
4. Above average
5. Exceed requirements (Honor Graduate)

5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?

1. Not likely to get them
2. A slight chance to get them
3. A medium chance (50-50) to get them
4. A good chance to get them
5. Very likely to get them



Instructions: There are many things to think about when we decide how much effort to put into something we must do. Please read the following paragraph and imagine that this is the way BMT is. Then answer the five questions below. Do not answer the questions for how BMT really is, but for how the paragraph says to imagine it.

BMT: Your MTL is not very helpful, understanding, and supportive. The other members of your flight give you very little help and encouragement. Your parents, friends, or wife are very supportive. The requirements for your dormitory inspections are simple and easy to do. Academics are difficult and require lots of study time. It is very hard to get satisfactory weekly ratings in attitude and adaptability.

39

Questions: Please answer each of the five questions below by circling one answer to the right of each question. Think about the paragraph you just read as you answer each question.

- |   |   |
|---|---|
| 1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph? | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
| 2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of the BMT described in the paragraph?                                | 1. Not likely to pass<br>2. A slight chance to pass<br>3. A medium chance (50-50) to pass<br>4. A good chance to pass<br>5. Very likely to pass                     |
| 3. How much effort do you think you would want to put out in all areas of the BMT described in the paragraph?   | 1. Very little effort<br>2. Some effort<br>3. Moderate effort<br>4. Much effort<br>5. Maximum effort  |
| 4. Given the level of effort you just indicated (in question 3), how well do you think you would do in all areas of the BMT described in the paragraph?   | 1. Poorly<br>2. Below average<br>3. Average<br>4. Above average<br>5. Exceed requirements (Honor Graduate)  |
| 5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?   | 1. Not likely to get them<br>2. A slight chance to get them<br>3. A medium chance (50-50) to get them<br>4. A good chance to get them<br>5. Very likely to get them |

### Final Questions

Instructions: These questions are very important. They have to do with the exercise you just finished. Please answer each question by circling one answer to the right of the question.

- |   |   |
|---|---|
| 1. When you answered each of the questions about effort, outcomes, etc., how much did the statement about your MTI affect your answers? | 1. Not at all<br>2. A little<br>3. Some<br>4. Quite a bit<br>5. Very much |
| 2. How much did the statement about the other members of your flight affect your answers?   | 1. Not at all<br>2. A little<br>3. Some<br>4. Quite a bit<br>5. Very much |
| 3. How much did the statement about your parents, friends, or wife affect your answers?   | 1. Not at all<br>2. A little<br>3. Some<br>4. Quite a bit<br>5. Very much |
| 4. How much did the statement about dormitory inspections affect your answers?  | 1. Not at all<br>2. A little<br>3. Some<br>4. Quite a bit<br>5. Very much |
| 5. How much did the statement about academics affect your answers?  | 1. Not at all<br>2. A little<br>3. Some<br>4. Quite a bit<br>5. Very much |
| 6. How much did the statement about attitude and adaptability affect your answers?  | 1. Not at all<br>2. A little<br>3. Some<br>4. Quite a bit<br>5. Very much |

Instructions: Answer these questions about the way BMT really is. Circle the answer to the right of each question that best describes how you think about BMT.

1. Is your MTI very helpful, understanding, and supportive of you or not?

1. MTI is helpful, understanding, and supportive
2. MTI is not

2. Do the other members of your flight give you lots of help and encouragement or not much?

1. Other members give lots of help and encouragement
2. Other members do not give much help and encouragement

3. Are your parents, friends, or wife very supportive or not?

1. Very supportive
2. Not very supportive

4. Are the requirements for your dormitory inspections simple and easy to do for you or are they difficult and hard to do?

1. Simple and easy to do
2. Difficult and hard to do

5. Are academics simple and require very little study time for you or are they difficult and require lots of study time?

1. Simple and require very little study time
2. Difficult and require lots of study time

6. Is it very easy to get satisfactory weekly ratings in attitude and adaptability for you or very hard?

1. Very easy
2. Very hard

Instructions: Answer these questions about the way BMT really is. Circle the answer to the right of each question that best describes how you think about BMT.

1. If you give lots of effort (extra time studying, helping other members of your flight, following inspections instructions, etc.), how likely do you feel that you will pass all areas of BMT?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

2. If you give very little effort (no studying, keeping to yourself, not working on your area, etc.), how likely do you feel that you will pass all areas of BMT?

1. Not likely to pass
2. A slight chance to pass
3. A medium chance (50-50) to pass
4. A good chance to pass
5. Very likely to pass

3. How much effort do you put out in all areas of BMT?

1. Very little effort
2. Some effort
3. Moderate effort
4. Much effort
5. Maximum effort

4. Given the level of effort you just indicated (in question 3), how well do you think you will do in all areas of BMT?

1. Poorly
2. Below average
3. Average
4. Above average
5. Exceed requirements (Honor Graduate)

5. Given the level of performance you just indicated (in question 4), how likely are you to get the outcomes that you rated as most attractive?

1. Not likely to get them
2. A slight chance to get them
3. A medium chance (50-50) to get them
4. A good chance to get them
5. Very likely to get them

Instructions: Presented below are 23 pairs of statements about life in general. Please read each statement carefully and draw a circle around the letter of the one statement in each pair that you personally believe to be more true. Check only one statement in each pair and please do not skip any pairs.

1. a. Many of the unhappy things in people's lives are partly due to bad luck.  
b. People's misfortunes result from the mistakes they make.
2. a. One of the major reasons why we have wars is because people don't take enough interest in politics.  
b. There will always be wars, no matter how hard people try to prevent them.
3. a. In the long run people get the respect they deserve in this world.  
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
4. a. The idea that teachers are unfair to students is nonsense.  
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
5. a. Without the right breaks one cannot be an effective leader.  
b. Capable people who fail to become leaders have not taken advantage of their opportunities.
6. a. No matter how hard you try some people just don't like you.  
b. People who can't get others to like them don't understand how to get along with others.
7. a. I have often found that what is going to happen will happen.  
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
8. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.  
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
9. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.  
b. Getting a good job depends mainly on being in the right place at the right time.
10. a. The average citizen can have an influence in government decisions.  
b. This world is run by the few people in power, and there is not much the little guy can do about it.
11. a. When I make plans, I am almost certain that I can make them work.  
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

- 12. a. In my case getting what I want has little or nothing to do with luck.  
b. Many times we might just as well decide what to do by flipping a coin.
- 13. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.  
b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.
- 14. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.  
b. By taking an active part in political and social affairs the people can control world events.
- 15. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.  
b. There really is no such thing as "luck".
- 16. a. It is hard to know whether or not a person really likes you.  
b. How many friends you have depends on how nice a person you are.
- 17. a. In the long run the bad things that happen to us are balanced by the good ones.  
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
- 18. a. With enough effort we can wipe out political corruption.  
b. It is difficult for people to have much control over the things politicians do in office.
- 19. a. Sometimes I can't understand how teachers arrive at the grades they give.  
b. There is a direct connection between how hard I study and the grades I get.
- 20. a. Many times I feel that I have little influence over the things that happen to me.  
b. It is impossible for me to believe that chance or luck plays an important role in my life.
- 21. a. People are lonely because they don't try to be friendly.  
b. There's not much use in trying too hard to please people, if they like you, they like you.
- 22. a. What happens to me is my own doing.  
b. Sometimes I feel that I don't have enough control over the direction my life is taking.
- 23. a. Most of the time I can't understand why politicians behave the way they do.  
b. In the long run the people are responsible for bad government on a national as well as local level.

Instructions: Presented below are some statements about your background and various attitudes. Please read each statement and circle either T for true or F for false as it applies to you personally. Please answer all questions.

1. T F I plan to attend college.
2. T F I quit school because I was failing.
3. T F I would rather work by myself than with others.
4. T F I have had more than my share of illness.
5. T F I would rather read than be with people.
6. T F I often played hooky from school.
7. T F I sometimes wanted to run away from home.
8. T F I enjoyed physical education.
9. T F I often have headaches.
10. T F I have been fired from a job.
11. T F I was expelled or suspended from school.
12. T F I quit school because I lost interest.
13. T F I needed special help with my school studies.
14. T F My family treats me more like a child than an adult.
15. T F I have cried several times this past year.
16. T F I have never cared much for school.
17. T F I have never done any heavy drinking.
18. T F High school was boring.
19. T F I was a slow learner at school.
20. T F I have been expelled from school more than once.
21. T F I think I will make the Air Force a career.
22. T F I usually take things hard.
23. T F I have been in trouble with the police.
24. T F I have been arrested more than twice.
25. T F For a long time I have had difficulty sleeping.
26. T F I joined the Air Force to get a better education.

27. T F I have needed help for emotional problems.
28. T F I have had my share of trouble with teachers.
29. T F I do not mind orders and being told what to do.
30. T F I feel better when I drink.
31. T F As a child I was a loner.
32. T F I was suspended from school more than two times.
33. T F At one time I needed medication to stay calm.
34. T F I often cuss and swear.
35. T F I entered the Air Force because there was nothing else to do.
36. T F I have often gone against my parents' wishes.
37. T F My father was a nervous man.
38. T F My parents were little help to me when I was in trouble.
39. T F People often anger me.
40. T F I was in special education classes.
41. T F I failed two or more grades in school.
42. T F My parents did not want me to join the Air Force.
43. T F I completed only eight years of school.
44. T F I am adopted or have spent time in a foster home.
45. T F I am closer to my 17th birthday than my 18th.
46. T F I have been independent and free from family rules.
47. T F In high school I took mostly college preparatory courses.
48. T F Basic military training has been a good experience for me so far.
49. T F If I don't do well at BMTS its not my fault.
50. T F I have been recycled.
51. T F How I perform at BMTS will make a difference in my first job or technical school.
52. T F If I can make it through BMTS I can make it through any Air Force school.
53. T F BMTS is pretty much like I thought it would be.



Instructions: For the items below you should think about the most recent job that you had before you entered the Air Force. This job could have been full or part time. Please read each statement carefully and draw a circle around one of the numbers to the right of each statement to show how much you agree or disagree with it.

- 1 = Strongly disagree
- 2 = Disagree somewhat
- 3 = Slightly disagree
- 4 = Slightly agree
- 5 = Agree somewhat
- 6 = Strongly agree

I really liked my last job.	1 2 3 4 5 6
In my last job I had very little authority over other people.	1 2 3 4 5 6
Whenever possible, I tried to work as part of a group rather than alone.	1 2 3 4 5 6
I did my best work when my boss was watching me.	1 2 3 4 5 6
Sometimes it was necessary to take work home to do.	1 2 3 4 5 6
Usually I couldn't wait for quitting time.	1 2 3 4 5 6
I considered myself a hard worker in my last job.	1 2 3 4 5 6
I really liked the organization I worked for.	1 2 3 4 5 6
My boss made my work enjoyable.	1 2 3 4 5 6
I worked best when I was told what to do and then left alone to do it.	1 2 3 4 5 6
I only worked hard when I knew I was being watched.	1 2 3 4 5 6
I often did things that needed done even if I was not asked.	1 2 3 4 5 6
I made a number of suggestions about doing things better.	1 2 3 4 5 6

Instructions: Fill in the blanks or circle the appropriate answer.

How old are you? \_\_\_\_\_ years

How many part time jobs (evenings, weekends, etc.) have you had? \_\_\_\_\_ jobs

How many full time jobs (40 hours per week or more) have you had? \_\_\_\_\_ jobs

What type of job did you have (either full time or part time) right before you entered the USAF?

Job title: \_\_\_\_\_

What is the highest education level completed by yourself, your mother and your father (if you do not know, leave blank)?

	You	Mother	Father
Eighth grade	1	1	1
Some High School	2	2	2
GED	3	3	3
High School Graduate	4	4	4
Technical or trade school after High School	5	5	5
Some college	6	6	6
College degree (4 year)	7	7	7
Graduate school	8	8	8